

Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC.

MAY 13, 1946



Pick-up Line Gets New Model Beechcraft: First photo of the new twin-engine Beechcraft 18-C shows the plane in test flight shortly after its delivery to All American Aviation, Inc. The pick-up carrier intends to use it and several to follow in combination pick-up and passenger service. The new plane, which still carries an experimental certification, will fly four passengers and crew with pick-up equipment and eight passengers if the equipment is removed. Cruising speed is 190 to 200 mph. Power plant is a Wright-Continental engine with 525 takeoff hp. (Story on Page 32)

Diversification Main Ingredient of Airpark Project

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Operators win fight against plan as aviation proponents get airmarking funds.....Page 13

CAB Issues Safety Rules for Non-scheduled Carriers

Part 42 effective Aug. 1; requirements for interstate and foreign flights general and simple. Page 27

Scheduled Air Carriers May Launch Cargo Rate War

Expected to seek off-route contract air freight even though at heavy loss.....Page 31

Presidential Action Averts Strike in Pilot Pay Dispute

ALPA scores victory in appointment of fact-finding emergency board.....Page 34

CHICAGO AND SOUTHERN'S DC-4 DIXIELINERS

Use **VICKERS 3000 psi HYDRAULIC EQUIPMENT**



Vickers 3000 psi
Constant Displacement
Piston Type Pump



Vickers 3000 psi
Unloading Valve



Vickers 3000 psi
Accumulator

Hydraulic equipment on Chicago and Southern's new 50-passenger DC-4 Dixieliners includes the Vickers 3000 psi units shown here. The Vickers Piston Type Pump has a maximum recommended operating pressure of 3000 psi and maximum recommended speed of 2750 rpm at which the horsepower output is 13.3 hp. As the pump weighs only 4.8 lb., it has the exceptionally low weight/horsepower ratio of only 0.81 lb. per hp. The volumetric efficiency and the overall efficiency are very high.

The Vickers Unloading Valve is used with Vickers Accumulators to accurately control maximum and minimum hydraulic system pressure regardless of flow rate. It functions as a pressure regulator, automatically unloading the pump as the accumulators reach a predetermined maximum pressure.

The 7 1/2" Vickers 3000 psi Accumulator has the high volume/weight ratio of 13 to 1, per lb. Maximum capacity is an important feature.

Write for a copy of Vickers Bulletin 45-41 for additional information about the most complete line of 3000 psi hydraulic equipment for aircraft.

VICKERS Incorporated

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**ENGINEERS AND BUILDERS OF OIL
HYDRAULIC EQUIPMENT SINCE 1921**

THE AVIATION NEWS

Washington Observer



AIR COORDINATING COMMITTEE—There are now seven governmental agencies which have banded together in the Air Coordinating Committee, policy planning group for aviation matters. Latest to join is the Bureau of the Budget on a non-voting basis. This is of particular interest since there has been considerable friction in the industry that the Bureau of the Budget was not as well-informed on aviation matters as some of the other agencies. Original five were Army, Navy, State, Commerce and CAB, with the Post Office Department coming in later. The committee is a voluntary one and has never been organized by law or executive order.

AERONAUTICAL BOARD—There are indications that the aircraft and related industries are now working more closely with the Aeronautical Board, the joint group on aircraft production control. Up to now most of the Board's time has been devoted to organization but regular Army, Navy and Marine officers are to be assigned in order to avoid turnover. A recent meeting which indicates the approach trend of activity was held by the standardization and design committee with representatives of Reynolds Metals and the Aluminum Company of America on the strength of metal aircraft elements.

WRIGHT DREADS HOUSECLEANING—Although the official newspaper probably will not disclose it, members of T. P. Wright's CAA Non-Scheduled Flying Advisory Committee while cleared with the Administrator the other day in an off-the-record conference tossed their basement fire set at various CAA activities. The Administrator laughed appreciatively, replied frequently, but apparently will consider most of the comments, public, and press criticism as unjust, despite the fact that it is ground.

FRENCH CONTRACT—Washington circles were more than slightly interested in a report that the Societe d'Etudes d'Aviation et de Services de France had negotiated a \$6,000,000 contract with Puget Pacific Lines, Inc. for 1,500 Wheelair 111-A four place passenger planes. Gershing in Washington indicated that it is not a French government project.



New tailboom of the four-place Hazer-Hammond personal plane forces in the propeller to protect bystanders is shown in this unusual perspective photo.

HANSEN
Couplings
PACE INDUSTRY

HANSEN PUSH-TITE COUPLING
Is composed of two parts—inner and outer—both of which are made of aluminum alloy. The inner part is inserted into the outer part and the two are joined by a special process. The result is a coupling that is strong, reliable, and easy to install. It is used for all types of aircraft fuel and oil lines.

HANSEN 100 SERIES GASOLINE COUPLING
Is composed of two parts—inner and outer—both of which are made of aluminum alloy. The inner part is inserted into the outer part and the two are joined by a special process. The result is a coupling that is strong, reliable, and easy to install. It is used for all types of aircraft fuel and oil lines.

HANSEN 700 SERIES ACETYLENE COUPLING
Is composed of two parts—inner and outer—both of which are made of aluminum alloy. The inner part is inserted into the outer part and the two are joined by a special process. The result is a coupling that is strong, reliable, and easy to install. It is used for all types of aircraft fuel and oil lines.

HANSEN 600 SERIES OXYGEN COUPLING
Is composed of two parts—inner and outer—both of which are made of aluminum alloy. The inner part is inserted into the outer part and the two are joined by a special process. The result is a coupling that is strong, reliable, and easy to install. It is used for all types of aircraft fuel and oil lines.

HOW THEY OPERATE!
1. Insert inner part into outer part.
2. Push inner part into outer part.
3. The two parts are joined by a special process.
4. The result is a strong, reliable coupling.

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News at Deadline

Santa Fe Starts Air Line

Announcement by the Santa Fe Railway that it has organized Santa Fe Skyway, Inc., an affiliate, to operate surplus C-47's with crews of veterans paroled by the West Coast Veterans rail line followed several research studies into the drought, previously reported in AVIATION NEWS.

Santa Fe officials, spearheaded by President Fred Garley, are concerned over possible loss in air freight service of some of their lucrative perishable traffic in southwestern care out of the Salinas, Cal., region. The Santa Fe is one of the largest carriers of perishables in the country.

McGowan Bill Opposed

Despite some changes, the revised McGowan "All American Flag Line" bill is meeting the same warm opposition as the original measure considered. The measure was approved in five government department reports just submitted to the Senate Commerce Committee by Harold Smith, Director of the Bureau of the Back, in anticipation of new hearings on the bill starting May 29. In submitting opposition reports from War, State, Commerce and Justice Departments and the CAB, Smith declared that "the opposition of these agencies to the 'community company' policy 'accurately reflects the Administration's viewpoint on this matter.'"

School Requirements Changed

Revisions of Civil Air Regulations Part 59 last week by the CAB established new minimum requirements for approved civil flight schools. Schools now will be issued a two-year Airframe Agency certificate if they comply with CAA requirements for any one of the following: 1. Primary flight school for private pilot's license only; 2. Commercial flying school; 3. Instrument flying school; 4. Flight instructor school.

Ap Board Hearing Delayed

Hearings before the Senate Interstate Commerce subcommittee on the Mitchell bill to create a National Air Policy Board of nine members to be appointed by the President were postponed from May 8 to May 29.



Industry Observer

Douglas' X-43 jet bomber, developed from the XB-42 Mustang, is expected to make its first test flight this week of Army's Materiel Flight but has on the Douglas Douglas. Test runs began last week. Donald Douglas will probably accompany high Army officers to witness what will be the first flight of an American jet bomber.

Guarded missiles which attack speeds of more than 700 mph, have already been developed in the Navy research program conducted by Grinnell Associates Laboratory, headed by Dr. Clifford Pitzer, at Buffalo Airport.

Based on a belief that five-cent rail fares are the lifeline through their bulk group will probably propose allocation of funds to back a national rail promotional program, simultaneously with a similar vigorous campaign to be undertaken by the Post Office Department.

Douglas Aircraft is studying for the market a close-tolerance cabin refrigeration control unit, designed to maintain temperature stability throughout long flights and cost savings in shipments of perishable fruits and vegetables.

A certificate bureau which would be set up by Air Transport Association on behalf of all member airlines has been proposed and will be discussed by ATA officials shortly.

Even Products Co., following the death several months ago of its president in a mid-air collision, is withdrawing financial support from the Edward S. Davis Transportation Research Foundation, and a plan has been suggested to a group of the larger non-subsidized air cargo lines that they take over the staff and continue air cargo studies.

Encouraged by the industry's participation in the recent Railway Mail Association Convention in Chicago, the airlines expect to have representatives at the convention of postal supervisors beginning May 25 in Chicago and are discussing plans for appearing at the national letter carrier's meeting in Detroit on Labor Day.

What will happen to certificated non-scheduled airlines when CAB-approved order lines begin operating in the same region? Virtually all of the non-scheduled carriers have made notice since VE and VJ Day, while competitors being operated by CAB were organized much earlier and enjoying thousands of dollars in filing applications and going through government hearings. Tom Air Lines' president, C. F. Brown, operates of a new air-taxi service, has taken vigorous exception to the Board's chairman's recommendations for new local services in the Trans-Ohio area. He charges that many of the routes involved for Ennis, Inc., Aviation Enterprises, Inc., and Aerotech Sales Co. have already been developed and are now operated by his company. He requested that the routes already being flown by Ennis be awarded to his CAB. Washington authorities, however, hold the view that the new operators have they were facing this problem when they began service without federal authority, and knew that cases could not be reopened after hearings had been held.

Minneapolis-based Reginald Co. has designed a special autopilot which will be designed as well by the experimental Northrop Flying Wing X-51 bomber as well as the various autopilot control extension planes. The special device uses four servo motors instead of the usual three.

New safety regulations reduce fire hazards on transport planes will further be being considered by CAB. All sound insulation and wiring materials in passenger cabins and pilot and baggage compartments would be fire-resistant or fire-proof under the proposed regulations which may go in effect Jan. 1, 1947.

The AAF, National Geographic Society and the Bureau Research Foundation of the Franklin Institute are co-sponsoring in a project calling for a series of flights by a specially equipped Boeing B-29 to increase the intensity of combat jets at various altitudes and latitudes.



The floor that walked before it flew

That soft, comfortable feel of walking on plush carpeting is a luxury for the indoor traveler, but it's a headache for the maintenance crew. Frequent cleaning, necessary to keep up a test area free of debris, takes time, spends more. Bags stretch, making it difficult to install them properly.

To provide a cushioned flooring material, B. F. Goodrich developed a lightweight, resilient sponge rubber base, and a new plastic covering made from lexanite, a new plastic. The covering comes in such colors as can be used with sensitive passengers.

Then, an compressing foam on

flexible "Aircraft" upholstery shop decided to test the flooring by walking on it. It made the test tough on the flooring material, too. The floor has been tested with the material, walked on these over the gravel runway, on the concrete floor of the shop.

The sales took the tough customer, still looked good as new. And the test resulted in a winning customer that the new B. F. Goodrich Flight Bag had

the high abrasion resistance needed for long, economical service. They also liked as heavy, the fact that it can be so easily cleaned with any good cleaner, the comfort of the cushioning, and the fact that it's fire-resistant.

B. F. Goodrich makes a complete line of airplane upholstery materials. For further information, write to The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.

B.F. Goodrich

FIRST IN RUBBER

Diversification Main Ingredient Of New West Coast Airpark Project

Eucade, Calif., operator feels that clinic of housing and ranch projects, recreational features and fixed base operation will narrow investment risk.

A prophet of business diversification, John H. Engel of Eucade, Calif., provides an interesting technique for airpark development and narrowing the risks of investment loss.

By this Fall he expects to have completed an 800 valley area within a mile of the community's business center as an airpark which probably will have no duplicate throughout the nation.

New being laid out on either side of a 1000-ft. runway are sites for personal aircraft hangars, residential lots, small hillside ranches, a retail restaurant and recreation center; a riding academy, a mudger race track, rustic trailer camp, aircraft maintenance, overhaul, flight school and other facilities, and refinements for automobiles, tourism and farm implements.

Land Value \$540,000 — Already carrying a land value of close to \$540,000, the entire venture will probably carry when completed a capital value of close to \$1,000,000—all in a sleepy little agricultural valley having a total population of no more than 15,000.

Engel considers himself, and it, a hard-headed business man, and believes that by drawing together at his airpark a variety of personally-owned business enterprises, he will secure himself of a profit cushion against the early loss returns from the purely aviation portion of his development.

His planning for the airpark project has been continuous, and carried out during the past ten years with initial land purchases and consideration of his area's community interests and potential growth.

Staff Structure Flexible—By consolidation of a variety of business developments he is in a position to maintain a flexible nucleus of administrative aides and labor which

can be shifted instantly to the provision of whichever business shows the greatest momentary activity.

Present indications are that after the completion of his airpark's runway, hangar and shops, recreation center and automobile and farm equipment salesrooms, Engel will concentrate upon the development and sale of his adjoining ranch and residential real estate.

With the backing of income from his residential real estate holdings, auto and farm equipment businesses Engel feels that he will be able to develop his aviation enterprise carefully and to measure its progress.

Aviation Promotion Center—Turf landing strip now gives Engel's field a Class I rating, but he ultimately anticipates gaining a Class II rating. A major oil company already

has installed fueling facilities and the hangar will house what probably will be the first aircraft repair station in San Diego county.

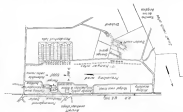
Looking to the future, Engel says: "When the airpark is completed this Fall I'll be ready for business that comes voluntarily, and ready, if the time is ripe, to begin an intensive education of my region on the advantages of personal airplane ownership."

"Much of the aviation 'education' will come naturally. People building homes adjacent to the air strip, and those attracted to the recreational and amusement facilities, will see planes coming and going constantly. They are bound to become interested in flying and in owning their own planes."

One aspect of Engel's planning is particularly noteworthy: his ultimate landing strip is to be 650 ft. wide by 5000 ft. long.

Governmental Improvements Foreseen—Engel hopes that when it is completed he will be able to dedicate the entire runway to the city as a public flight strip under the condition that the public agency obtain state or federal funds to give the runway a blacktop surface, lights, and radio control facilities.

So confident is Engel in the second-



Unique Airpark This sketch indicates the extent to which business diversification is being applied to the development of Engel Airpark at Eucade, Calif., 25 miles northwest of San Diego, to safeguard the builder's social heavy investment. The project is due to be completed this Fall.

ness of 100 percent that the structure of diversified business be set up with the airport as a hub from which the various considerations of status and planning airport projects.

While the Keeshaide project is obviously a one-man enterprise, there seems to be no reason who offers, with less initial capital at their command, might not follow suit to advantage, possibly gaining needed funds through a corporation sponsoring multiple business ventures tied closely to airports.

Self-Refrigerating Transports Planned

Douglas engineers are now working for probable cargo use of divided cabins and self-cooling.

A vastly broadened scope for air cargo transportation, especially in drying garden-ery vegetables and time-sensitive fruit from agricultural areas in large markets, is seen in the research just completed by Douglas Aircraft engineers on the first self-refrigerating transport planes.

Present plans call for conversion of surplus Douglas C-44 army transport into flying refrigerators. Cales space in this unit is equivalent to that of a standard freight car.

Heretofore only limited quantities of perishables have been carried in standard transports with dry ice packing as a refrigerant. A feature of the perishable commodity carrier proposed is a centrally divided cabin which permits use

half to be cooled while the other remains at normal temperature as it is heated.

Plans for UAL.—Developed by the mechanical section of the Douglas engineering department at Santa Monica at the suggestion of United Air Lines, plans for the refrigerated plane met initial approval of other carriers.

Work product has been flown to provide some delicious at premium prices, large-scale scheduled deliveries for the general market have not been made.

Douglas engineers estimate that 17,156 British thermal units per hour are required to maintain the DC-4 cabin at a temperature of 45 degrees on a 135 degree day. Forty-five degrees is considered ideal to

Airline Space Expansion

By 1949, when United States domestic airlines will have received all the new transports now being ordered, they will have a total useful capacity of more than three times the pre-war billion passenger miles provided to railroad-polluted travel in 1945.

This comparison has just been given in Los Angeles by Allen P. Adams and Associates, aviation consultants, with the comment that airlines may find themselves over-equipped in their possession of 1,135 airplanes, including DC-7s now in use.

The Adams group, analyzing aircraft orders of individual airlines, singled out one carrier which in 1945 handled 3.4 percent of the Sta-

tion's air traffic, and flew approximately 130 million passenger miles. This company's new transport orders will give it, by 1949, a capacity for handling 95.5 percent of the total passenger mileage flown by all airlines in 1945.

To utilize its 1949 air fleet at 70 percent load factor it will have to increase its business volume-fold during the three intervening years.

Adams believes that by 1950 airline business will have increased 145 percent over that of 1945 and that passenger business, which reached \$668,000,000 in 1945, will grow \$121,000,000 in 1950. He believes that by that time the average mile rate for domestic air travel will be down to 3.5 cents.

Some perennials at peak freeways. Any selected temperature from 45 to 85 degrees is maintained constantly through thermostatic controls. Both compartments can be set for the same temperature or one may be kept cold while the other is warmed.

Divided Cabin Features.—Purpose of the divided compartment and its individual temperature control is to permit maximum load utilization. Thus, while one compartment carries perishable commodities, the other may carry other types of cargo.

Conversion of the airplane for such operations involves adding a layer of five-glass insulation under the floor—preventing in DC-4 planes. A vapor-cure refrigerating unit using Freon 22 as a refrigerant is installed. The mechanism is operated from the plane's electrical system in flight and from a gasoline-powered motor generator in the ground. A gasoline combustion unit provides heat.

Insulation and the power installation add approximately six percent to the aircraft's gross weight of 63,000 pounds.

Lockwood Takes WAA Post

Ralph G. Lockwood has been appointed chief of manufacture and salvage of the Office of Aircraft Division of the War Assets Administration. He succeeds Stanford J. Reile who has resigned. Lockwood until recently was a colonel in the AAF, assigned to Hickam Field, Hawaii, a command which he took in charge of operations for the Pacific division of the Air Transport Command.

Pulse-Jet Advantages Rated For Supersonic Speed Range

Manfred notes Southern California SAE that pulse-jet has definite advantages of thrust and economy over both athodyd and turbo-jet power plants.

Pulse-jet engines, first used effectively on Nazi "buzz bombs," held great promise for the propulsion of supersonic aircraft, the Southern California Section of the Society of Automotive Engineers was told during a recent Los Angeles meeting.

Engineers whose consideration of power sources for supersonic flight previously had centered upon the ram-jet (athodyd) engine and upon both liquid and solid fuel rocket engines, were addressed by a Soviet pulse-jet authority, Dr. Joseph F. Manfild, chief research engineer for G. M. General & Co., Inc., of Pasadena, Calif.

He said that in the light of research completed on the pulse-jet engine shows promise of competing with the athodyd in power output at supersonic speeds and that in other respects it offers distinct advantages in comparison with the athodyd.

Continuous Thrust.—An influential advantage cited by the engineer is that the pulse-jet engine continuously supplies the sufficient resistance (aircraft flight) throughout the entire range of subsonic speed, whereas athodyd thrust at subsonic speed is negligible below 500 mph.

Another indicated superiority of the pulse-jet engine is that its fuel rate stays approximately constant while thrust rises rapidly with increasing air speed, the fuel rate being appreciably lower than that of the athodyd at speeds up to 700 mph.

In his engine evaluation Dr. Manfild concluded that the pulse-jet engine is unable to attain the thrust of a turbo-jet engine at subsonic speeds, but he reminded his audience that in the subsonic range it has demonstrated its utility where an expendable power plant at low initial cost is required, as for the propulsion of winged missiles.

Superior to Turbo-Jet.—While he admitted that it is difficult to estimate the relative positions of power plants ten years hence, Dr. Manfild said that present limitations of the turbo-jet engine indicate reliance upon the pulse-jet and athodyd

engines as power sources for supersonic flight.

As one of several limitations of the turbo-jet engine, he cited heavy-duty restrictions imposed by inability of present turbine blade materials to perform under high stress at a temperature exceeding 2,500 degrees (Fahrenheit). Overcoming other technical limitations, he said that turbo-jet thrust considerably could rise to an unlimited degree were it possible to accept a marked rise above presently allowed compression ratios and temperatures.

In contrast, the speaker cited the ability of athodyd and pulse-jet engines to operate at compression and fuel ratios providing combustion temperatures of up to 5,000 degrees (Fahrenheit).

Hot Parts Protected.—He pointed out that while turbo-jet turbine blades operate at high stresses directly in the flow of hot gases, which would be limited in their temperature to the endurance of the blades they contact, as metal parts of either the athodyd or the pulse-jet engine are subjected directly to the maximum temperatures of their combustion chambers.

He said that in a pulse-jet engine the combustion chamber temperatures may be 4,500 degrees, yet the temperature of the inner wall prob-



INSTITUTE PRESIDENT:

Dr. Gen. Lawrence J. Carr, chairman of the board of Trans Caribbean Air Cargo Transport, New York, is first president of the newly organized Institute of Air Transportation, association of non-scheduled carriers. He is retired from the Army after 20 years in the AAF, following production from West Point in the Class of 1932. During the war he was chief of staff to the Commander of the Seventh Air Force and later command-in-chief of the Seventh Bomber Command operating in the Central Pacific. Trans Caribbean is the non-scheduled carrier planning inland hops through the Caribbean to deliver cargo to and pick it up from the Brazilian airline Overseas do Sul at Belém, Brazil.

ably will not exceed 2,500 degrees, and the outer wall temperature probably will not exceed 1,000 degrees, the boundary layer at the inner wall being largely responsible for the sharp temperature gradient.



BLACK WIDOW CONVERSION:

Experimental civil version NX 12037 has been used in Maritime Aircraft Company for this "de-armored" version of the hard-hitting P-61 Black Widow night fighter, pictured above at La Guardia airport, New York. Designed to get in and out of small front-line airfields with a heavy load of bombs and radar equipment, the plane is now to be a five-place aircraft of manufacture in a unit series. It is undergoing engineering tests to obtain a CAA approved type certificate. Narthrop is using at least one of these conversions for speedy air transport of its associates.



THE HUSHHOOK THAT NEVER FORMED:

One of the first published sketches of "Project Hushhook," this extremely drawing shows construction details of the cargo loading carrier once considered as an answer to the submarine menace in the Arctic regions. "Hushhook" was to be made of reinforced steel blocks, 3,000 ft. long, 200 ft. wide and 200 ft. deep. The project originated in September 1941, not so far as a block model at Patricia Lake, Jasper, Canada, and was finally abandoned in December, 1943. The drawing is an official sketch from Combined Operations Headquarters.

Aircraft Wages Show New Increase Pattern

NWSE pay increases tend to 13 percent case in hourly pay; average weekly wage drops 13.2 percent in year.

A recommendation wage increase pattern of 13 percent appears to have been designed among airplane manufacturers, although there have been some increases above and below that figure since V-J Day. This is indicated by rates which have been approved for price relief purposes by the National Wage Stabilization Board and others which did not involve price ceilings and therefore did not need government sanction.

It is possible that NWSE may officially recognize the pattern, as it has recognized patterns in other industries. If that is done, covered employers would have been pre-approved to grant increases without extending the pattern and going before CPA, a seeking price relief.

Lockheed Nuts Trend—The trend was started in January by Lockheed Aircraft Corp., Burbank, Calif., which obtained approval of its new agreements providing for a general increase of 13 percent for more than 36,000 workers in production and 1,700 technical employees.

A few days ago NWSE approved the same increases and a new wage schedule for some 18,000 employees of United Aircraft Corp., East Hartford, Conn. This covered 18,000 production workers at Chance Vought Aircraft Division and another 250 at Sikorsky Aircraft Division, as well as 6,300 salaried employees in all divisions.

Cents and Pence—Some increases have been as cents, rather than percentage, base. These include Boeing and McDonnell Aircraft, 10 cents an hour; Glenn Martin, 10 cents; and Fairchild Aircraft, 10 cents.

Others which have granted increase of 13 percent include North American Aviation, Northern Aircraft, Consolidated Vultee, Douglas Aircraft, Republic Aviation and Fleetwings Division of Kaiser Corp.

On the other hand, Ryan Aircraft has granted 10 percent and Grumman Aircraft 10 and one-half percent.

Weekly Earnings Down—Average weekly earnings on aircraft and parts were \$45.73 in February, representing a decrease of 13.2 percent over a year ago, according to Bu-

Aviation: 1926-1946

Twenty years ago this month on May 20, 1926—President Coolidge signed the Air Commerce Act and seated in the Department of Commerce the first specific government responsibility for what has become a great new industry.

The Civil Aeronautics Administration plans to formalize observations of the industry, but has pointed out:

- In 1926 the industry carried 5,000 passengers. This year it is estimated that 11,500,000 persons will be scheduled U. S. air carriers.
- The 1928 passenger could cover 1,000 miles per day by air. By the end of 1946 the routes of U. S. airlines will extend for 200,000 miles.
- In 1927 there were 1,071 certified pilots and this year is expected to see the CAA pilot list reach 350,000.

The CAA staff has grown from an organization of 222 in 1927 to 697 in 1946. There are 12,000 today. CAA personnel are scattered over the United States and in many foreign countries with about 30 percent of the total in Washington. Approximately 1,200 CAA employees are engaged in construction, operation and maintenance of air navigation facilities, such as radio communication stations, air traffic control centers and towers, instrument landing systems and the like.

News of Labor Statistics reports Average hourly earnings, however, were \$1.25, an increase of only two cents over half a century. February 1946, which indicates that the post-war wage increases were not reflected in February payrolls. The week work in February was down to a shade over 40 hours.

Flight Test Laboratory to Open with Plane Show

General Electric Company will open a new flight test laboratory at Schenectady county airport, N. Y., June 21 and 22, with a public air research demonstration which Charles E. Wiley, company president, predicts will feature more types of advanced planes than ever seen in such a program.

AAP, Navy, and some major airlines and plane manufacturers will participate. Among the planes: AAP's P-38, P-58A, C-47, C-54 and biplanes; Navy's Ryan PB-1 and other advanced Navy fighters and biplanes.

APL Names C. F. Kettinger To Study Air Education

C. F. Kettinger, vice president and director of research for General Motors Corp., will direct a study of the American educational system and its military and commercial aviation needs under the sponsorship of the Air Force League.

The preliminary survey will cover the needs of aviation as a whole and will determine the possible contribution to aviation of all colleges and universities, particularly those conducting courses in aeronautics and related subjects.

If Thomas Duggan, the League's president, said the study would be followed by the drafting of a series of schoolships.

AVIATION CALENDAR

- May 20—May 20: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 21—May 21: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 22—May 22: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 23—May 23: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 24—May 24: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 25—May 25: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
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- May 27—May 27: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 28—May 28: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 29—May 29: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 30—May 30: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
- May 31—May 31: The first Airline Roadshow, sponsored by the National Aeronautics Council, will start in New York City, N. Y.
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NEWS DIGEST

FOREIGN

- British House of Commons**, in last meeting, approved Government's bill to nationalize British airlines.
- Egyptian Government** agreed to agreement with Great Britain for transfer of ownership of an international Egyptian airline.
- An Agair-Boulton** airline was organized to be between Iran, England, and the Continent.
- Radio Rangoon** has been and yet will be built in China, company announced.
- China Nat. Aviation Corp.** will open new routes from Shanghai to Hanoi, Singapore, Tokyo and Seoul, Korea, with a DC-4 equipped this month.

FINANCIAL

- Investor Air Chats** 1945 rose to \$18.25, or 12 cents, above \$18.00, or 71 cents in 1944. Lexington, Ky. 71 cents has closed, Buffalo in negotiating on "electronic" for Indianapolis.
- National Skyway Freight Corp.**, 500,000 10-cent common shares, went up to \$1.
- TACA Airways** will use next \$2,000,000 proceeds from common stock sale to reduce loans of Export-Import Bank and Bankers Trust Co. International Bank, New York, N. Y. Co. Prospectus covers \$2,000,000 per share.
- U. S. Airlines, Inc.**, headed by Harry Pratt, Jr., Pittsburgh, Pa., expects \$90,000,000 per common share and 114,000 stock purchase warrants. Stock will be sold to public at \$12.50, net offering \$12.50.

DOMESTIC

- Boeing Air Mail** application for a 10-hour air carrier permit for 5 routes into and across U. S. territory in set by CAA for May 15.
- American Airlines** will increase its 100-plane fleet to 125 by Jan. 1946, and may have 1000 airplanes by 1950, President Doolittle says.
- Florida Aviation Transfer** Inc. has been organized, headed by W. L. Ladd, Jr., St. Petersburg, president.

FINANCIAL

Manufacturers' Stocks Decline; Many May Run at Loss in 1946

Drop in market values averages 19 percent despite good 1945 earnings; "good news" of transport orders may be balanced by unpublicized airline cancellations.

Aircraft shares as a group have suffered a material market decline, despite reports of excellent 1945 earnings and strengthened financial conditions. In the face of large unfilled backlogs, many companies, nevertheless, are expected to operate at a loss as they seek to balance a sharp market this year. Most of the "good news" on new transport orders appears to be out with the trend moving in the other direction with unpublicized cancellations by airline management.

The extent of the current market declines in aircraft equities is revealed in the accompanying table. It will be noted that the drop in market values ranges as high as 40 percent with the average around 19 percent.

Carlin-Wright Drop—The sharpest drop of about 40 percent developed in Carlin-Wright. The spark that touched off this decline was the decision of the dividend on the "A" stock. This markedly called attention to the severe contraction going on in the company's operations.

Lockheed is reported to be making money on its Constellation and

military orders, but if it decides to undertake a plant consolidation program this year its operating profits may be largely absorbed. Consolidated-Vultee, with substantial military contracts and heavy development costs unmet, will most likely show a deficit for 1946.

Beach Record Book—Beach's capital stock unquestionably has the best market record among the aircraft builders. The stock is currently selling near its all time peak and has attained a price at higher levels than those that prevailed in previous years. The company recently reported earnings of \$1.40 per share for the year ended September 30, 1945. ("Rate is subject to reorganization of war contracts.")

The company has a single capitalization—only \$60,000 shares of capital stock outstanding. Working capital alone equaled almost \$18 per share as compared to the present market price of around \$185. Beach has a number of aviation activities which afford the company with speculative attractions. Gas and oil were discovered on its property recently and the

company's participation in the manufacture of Puller boats also appears interesting.

Boeing Capital Firm—Boeing Airplane stock shows a firm, undisturbed and considerable substance for that can be found in its recent annual report. Currently selling around \$30 per share, the company shows a book value of approximately \$44 per share with net working capital alone aggregating about \$45. A source of hidden strength may also be found in the heavily amortized plant values. This is a condition which is present in virtually every other aircraft company.

Another maturing factor in Boeing's stock is its current backlog of orders for commercial and military transport. Earnings of \$5.96 per share (subject to war contract renegotiations) were the best in the company's history and were after heavy amortization charges.

Air Investments Good For Long-Term Holder

Investment sources are faced with the problem of appraising the position of aircraft equities in the ever-changing characteristics of the investing market. In an interesting column, "Rate of Climb," Harris, Upham and Co., New York Stock Exchange firm, advances a number of significant observations.

The financial house notes that twenty-five years ago the investor had 330 opportunities to place his funds in the aerospace industry. Some 1,600 state companies have been set since the turn of the century, all with high hopes. Today, these concerns handle over 90 percent of the business and the list of assigned products is very limited.

Relatively Newcomer—After reviewing the construction that has developed in aircraft stock, the study calls attention to the high degree of inherently necessary for profitable investment in the group, but concludes that recent market features have emerged from the war with more up-to-date production facilities and greater financial strength than any young industry has ever possessed.

An unquestionable degree of future expansion is envisioned. For example, in the face of a 97 percent rise in production value from wartime peaks, present unit volume is estimated by the analysts at approximately 500 percent higher than before the war.

PRIVATE FLYING

CAA's Repair Base Proposals Scrapped by House Amendment

Operators will fight against CAA plan as aviation proponents also get earmarking funds, restoration of control tower items; CAA budget now \$66,310,582.

Aviation service operators and other industry groups opposing the Civil Aeronautics Administration plan to establish its own repair bases for the CAA plan have their efforts renewed last week when the House of Representatives adopted an amendment calling for letting of contracts to commercial aviation firms for all repair and overhaul of CAA planes costing more than \$100 per airplane.

The amendment was one of three important points of aviation legislation approved by the House last week. The others were:

• Reiteration of an item providing for CAA funds to operate 138 airport control towers.

• Provision of \$100,000 in CAA's budget for an earmarking program in conjunction with state and local community authorities.

Amendment Spawns—The amendment which carried the CAA repair base plan was sponsored by Rep. Jennings Randolph, (D-W. Va.), who also sponsored the earmarking amendment. The control tower amendment was sponsored by Rep. J. Percy Priest, (D-Tenn.).

Randolph's repair base amendment provided for lapping out \$100,000 from an original \$1,300,000 appropriation and stipulated that the funds should not be expended for maintenance of more than one workshop for storing aircraft parts, "nor for the repair and overhaul of aircraft costing more than \$100 per plane."

CAA May Skipplan—In effect, the amendment still permits CAA to carry out its plan for "skipplan" approximately \$1,300,000 worth of surplus aircraft spare parts including complete fuselages, wings, and engines, which may be used on its 224 recently acquired surplus planes. But it prevents the government agency from going into competition with privately operated repair bases in doing major repair and overhaul of its planes.

Fight against the proposal for CAA-operated repair bases was led by Aeronautical Training Society, National Aviation Trades Association, National Aeronautics Association, Personal Aircraft Council, Air Transport Association, Aviation Distributors and Manufacturers Association, U. S. Chamber of Commerce, National Association of State Aviation Officials, Aviation Insurance Group, and the American Association of Airport Executives.

Oklahoma City Base—Originally, the CAA had requested \$250,000 for the repair base project, which had been curtailed first to \$1,500,000 and finally by the Randolph amendment to \$1,300,000. It was indicated that CAA probably would

CAA VIEW

Civil Aeronautics Administration T. P. Wright told aircraft industry Association representatives last week that the establishment of funds for the CAA repair base plan and storage of parts would result in a slow-down in utilization of CAA planes. The requirement that CAA planes be taken to commercial bases for major overhaul and repair work will mean fewer flying hours per month for each plane, he predicted. The Administrator spoke at a Washington meeting of numerous representing light plane manufacturers.

operate as single storage base for aircraft parts at Oklahoma City, which was to have been the major base of the program.

The control tower amendment related to CAA appropriations which had been tacked out in an appropriations sub-committee hearing. The sub-committee had held that the transportation for which the towers were operated should assume responsibility and cost of operation. The deletion aroused vigorous protest from local communities affected and from



WINGLESS ERGOPIES.

Six wingless Ergos, which had arrived at Adkins, Ga., via freight car, were taken through downtown streets with a police escort, from the railroad station to Ben Epps municipal airport, recently, demonstrating the one-day operation of the sizeable triplane jet. The wings were added and the planes were flight-tested at the airport by Southeastern Air Service, Inc., George Davidson for Georgia, North and South Carolina. Above: Miss Tennyson Densett, secretary, W. H. Bond, sales representative, J. W. Warner, sales director, and Gerry Muel, maintenance supervisor, all of Southeastern, take delivery on the period of planes at the railroad station.

1946 MARKET RANGE
Leading Aircraft Builders
Traded on New York Stock Exchange
1945 Range*

	High	Low	End	% Decline 1945
Beach	38 1/2	18 1/2	30 1/2	52
Boeing	20 1/2	20 1/2	20 1/2	17 1/2
Boeing	20 1/2	20 1/2	20 1/2	17 1/2
Consolidated-Vultee	20 1/2	20 1/2	20 1/2	50 1/2
Carlin-Wright, "A"	21 1/2	20 1/2	21 1/2	40
Carlin-Wright	21 1/2	20 1/2	21 1/2	40
Douglas	100 1/2	88 1/2	87 1/2	12 1/2
Lockheed	115 1/2	115 1/2	115 1/2	18 1/2
Lockheed	115 1/2	115 1/2	115 1/2	18 1/2
North	61 1/2	27 1/2	38 1/2	19 1/2
North American	115 1/2	115 1/2	115 1/2	17 1/2
Boeing	21 1/2	13 1/2	20 1/2	17 1/2
United Aircraft	115 1/2	22 1/2	20 1/2	19 1/2
United Aircraft	115 1/2	100 1/2	115 1/2	9 1/2

*Up to May 1, 1946

many branches of the aviation industry. The original control tower appropriation had been for \$3,000, - \$50 in operating 116 spares. The amount was increased to \$3,561,000 to provide for 16 additional towers recommended by CAA, as the amendment was passed.

Private Flyer Adds—The Bendish airman's second was primarily a private flyer and, the sponsor emphasized, it was offered and adopted in less of a \$50,000 item which had been earmarked earlier for CAA airman's and had been included in a previous hearing. Bendish argued that \$25,000 was entirely inadequate for a national program, even with state and local support, and pointed out that he had originally asked for a \$200,000 marketing organization.

Now Up to Senate—As a result of the House action, the CAA 1947 fiscal year appropriation, totaling \$60,318,552 is now pending before the Senate Appropriations Committee. The House-approved amount compares with the \$73,357,000 figure recommended by the Bureau of the Budget and the original figure of approximately \$94,000,000 asked for by CAA.



BARTLETT BLUE ZEPHYR:

Two views of the experimental two-place 200 hp. Bartlett Blue Zephyr was being test flown by Bartlett Aircraft Corp., Rossmore, Calif., about a plane of short and stubby configuration. The Blue Zephyr is a development of the Saboteur monoplane built in Cleveland in the early 1930's. Of conventional steel tubing-fabric construction, the Blue Zephyr has unusually good visibility with its transparent plastic canopy. A later production version is to have more horsepower, a constant speed propeller, and two-way radio. Performance data on the Blue Zephyr has not yet been released.

131 Surplus Planes Go on Priority Sale

A pricing sale of 131 surplus planes, most of which can be used as personal aircraft, will give priority buyers first choice. War Assets Administration has announced. The sale will begin May 15 at four intermediate depots, Woodward Field, Cincinnati, C. (32 planes), Champaign Field, Yankin, Ohio, 34; Eagle Field, San Francisco, Calif., 39; and Cal-Aero Field, Oxnard, Calif., 26.

The planes at Cal-Aero are Grumman Wahegona, while other types on sale include Piper L-4 Cherokees, Vultee L-2 Ventura, Waco UFF-2a, Fairchild F-24s and M-40s and Northrop Nomads. **Priority Schedule**—Federal agencies will have first priority May 15 through 16, and May 20 through May 25. State and local governments will have second priority May 16, and from May 20 through 25.

World War II Veterans will have a priority from May 23 through May 30, after which remaining planes will be for sale to the general public.

Farm-Office Committee

William L. Anderson, Pennsylvania Aeronautics Director and president of the National Association of State Aviation Officials, has now purchased his first personal plane. It is a four-place Stearman, which he took from the factory at Riverside, Ill. to his office at Harrisburg, Anderson will use the plane for commuting between his home landing strip and his office, all made by road but only five minutes by plane. *Aviation News*, June 25, 1945.

Advance Estimates Urged As Overcharge Check

Recommendation that every member of the Aircraft Owners' and Pilots' Association obtain a written estimate in advance of contracting for any repair work to his airplane, is being made by J. R. Hartsfield Jr., executive manager, on a basis of hundreds of complaints received at the AOPA Washington office of overcharges for repair work and unusual inspection.

Assuming that a reliable repair base will cheerfully give such a written estimate, Hartsfield suggests that if the shop refuses, the work be taken to another shop. He has urged each member of his association to follow three rules:

1. Ask for a fair rate on any repair job plus cost of parts.
2. Obtain a written estimate in advance.
3. Report cases of overcharge or other poor business practices to AOPA headquarters.

Randolph, Parks to Speak At Eldon Airpark Opening

Rep. Jennings Randolph, (W. Va.) and Oliver L. Parks, president of Parks Air College, East St. Louis, Ill., will be speakers at the dedication ceremonies for the Eldon, Mo. Model Airpark, June 8 and 9. None of the principal dedication speakers has not yet been announced.

The Saturday program will include a parade showing evolution of transportation, the dedication address, and a banquet and reception. Sunday event will include a tour of the Lake of the Clouds, an air show with cross-country and closed course light-plane races, and demonstrations of new personal plane helicopters and sailplane aircraft. Chairman is Mayor Bob Scott, of Eldon.

Western Range Flyers Realize Greatest Lightplane Utility

Survey of cattle states finds that ranches use their light planes every day for regular work, while city-owned airports see hangar-bust most of the time.

If getting from "here to there" for work and pleasure is an indication of utility from the Western ranchers, living as far as 100 miles from main cities and highways are the plane owners who are today realizing the most from their investment in light aircraft.

AN AVIATION NEWS survey among typical Wyoming, Idaho and Utah ranchers finds many of them using lightplanes every day for regular work, while city-owned planes in those states stay in the hangar most of the time between Sundays when they are taken out only for an hour or two of joy-riding.

Cattle Round-Up—L-4 Cherokees, Mustangs, Cessna Flying Services, and Aeromax distributors for Wyoming, report a typical example of lightplane use by ranchers. The next, a new-flier, called Cheppie to rent a plane and pilot after a week's steady horseback riding had failed to locate some missing cattle.

In four hours of flying in Cheppie at the controls, he spotted more than 100 head of the stray livestock, nearly 40 miles from the range area where the rancher had been seeking them. The cattle worth nearly \$250 apiece, were then rounded up by cowboys—and the rancher applied for flight instruction and began private lightplane lessons on his own in his hangar.

Wandering—Hogwarts, another typical user is Guy Sherman, owner of a ranch 70 miles northeast of Douglas, Wyo., who uses his Piper Cub J-3 regularly over his extensive holdings. Sherman has installed a system of windmills and auxiliary power pumps to pump water from deep wells on his range, to water stock at points where there are no natural water holes.

Sherman has a landing strip at each watering place, and flies frequently inspection trips, landing whenever he finds a dead-up steer hole to repair the windmill or start the auxiliary pump engine. Sherman is replacement parts, supplies, and tools by plane, instead of packing them in by wagon or pack-horse in his own country.

Sherman's use of a plane on his ranch has been so successful that he has encouraged his rancher

neighbors to take flight lessons from Aeromax dealer Dick Sherman at Douglas. Sherman flies his trainer into the Sherman ranch and the flying students coming into the main field there on horseback and by car from miles around.

Anti-Foot Wagon—In addition to using planes to locate strayed stock and mend selected equipment, ranchers also use lightplanes to kill coyotes and other predatory animals that rob the range.

Two Locos, Utah flyers, Curtis Kent and Jay Howell are active hunters. Howell pilots his Cub Crusier and Kent his in the gunner's seat with a buckshot-loaded 12-gauge shotgun. Against snow-covered slopes coyotes are easy to spot and an approach is made at about 300 feet. When in the plane is slipped toward the coyote and the shooting is between the struts and the prop.

As many as 15 coyotes have been killed in a single day by the two men and 18 were accounted for during the hours of flying in past months. **Fire Planes**, too—At Postville, Idaho, on a recent Saturday, a Piper Cub was seen flying out of a snow-bound canyon where the roads had been barred by two feet of drifts for several months. It would have required a full day by team and sled and only for the rancher and his wife so that the trip is taken. Yet, with their lightplane

Action in L. A.

Personal airplane owners in the Los Angeles area, where tailwinds have so far prevented wind soaring, are hoping that the airport shutoff will end.

After months of delay and rejection of various applications, the Los Angeles County Board of Supervisors recently produced a three-to-one vote (two against, one for) approving an airport shutoff proposed by property owners of the town of Soquel. Observers believe that the Riverside majority for the Soquel airport indicates a similar vote will favor applications.

The single opposing vote came from a supervisor who makes no pretense of maintaining his dislike for personal flying. After he had voted "No," Supervisor William A. Smith, local shirker, said: "I hope you got all kinds of left difficulties out there (Soquel) and I can promise you you're not going to have any riding."

they were put 48 minutes from their water-holed ranch carrying a case of eggs for sale and with both planes for a Sunday shopping tour and a visit to the latest custom picture. Returning Sunday, they would be ready for another week's work on the ranch.

Plane Performance—No particular plane seems to have first choice. The flying cowboys use all kinds with equal facility, but one and all agree that more horsepower and slower landing speeds will help a lot in hard altitude operations.

Another other thing flown by



PILOT COMFORT IMPROVED:

Newly equipped with a sliding plexiglass canopy, the interesting prototype Skyhopper built at a single-place personal aircraft by Avionics Builders showed marked improvement in pilot comfort when it landed recently at Carson City (Calif.) airport. The appearance of the plane on the West Coast, still carrying an experimental license, has aroused speculation over the possibility that it may be manufactured there. The plane was designed to sell for approximately \$1000, and is said to cruise at 110 mph.

tractors are coils and valves that need medical attention, and that is centered at "hot" points on the vinyl and machine parts to repair equipment that breaks down during hay and harvest seasons when time saved counts importantly against the threat of bad weather.

CAB Revokes Tickets Of Two CAR Violators

Violations of Civil Air Regulations caused the Civil Aeronautics Board to revoke the certificates of two pilots and suspend, for varying periods, those of six other airmen, according to latest Board investigations.

Summaries of the cases and corresponding Board actions follow:

REFERENCES

[illegible]

SUSPENSIONS:

Lee W. Hall, wildlife officer, has Spring with a permanent area of 100 acres, Texas, at 400 ft. altitude, a hot fl. over the Laramie mountains and at 10 ft. above the Alibon Mountains. The fl. with Arizona children's fl. at 100 ft. (100 ft.) and 10 ft. (10 ft.) children's mountain at 10 ft. (10 ft.).

[illegible]

Wilson, former Lincoln, claims that he fled alone into the woods himself in 1981, avoiding, but falling in line with, an American by taking the same line of flight, being told by the police officers that was being used by the Washington Airport (United States, May 3, 1981, and being told to stay in the center in order to avoid a mid-air collision with the American Airlines jet (CAE, 1984, 10-145) and 10-146). Confirmed responses

Chicago **Neptune Van Driver**—commenced giving his afternoon tea parties, starting the Neptune tradition on the street cars in mid-November. On a ship and around the right of way when LaSalle's place was at a hotel situated in the neighborhood for a morning, Mrs. J. [sic] at Coffey's, N.W. Neapolitan support. Artists released 1946 between 1942 and 1945. Concluded commencing for 20 days.

Joseph L. Kinslow, public pilot, 154 Thrive drive, a winged pair of Cardinals, Peoria, at an altitude of less than 400 ft. and flying in a series of random circles 40 ft. above the Alhambra River, covering a square area not extending into the river. Oct. 19, 1946, Audubon Society, C.A.R. numbers 69121(a), 69121 and 69122. *Cardinalis cardinalis* (Linn.).

Briefing *For Private Flying*

RECKLESS FLYING—As long as young men and young women drive automobiles and fly airplanes, we are bound to have a certain amount of reckless driving and reckless flying. But it is a sign that private flying is beginning to grow up, when organizations and governmental agencies take accident prevention as hard as it has been hit in companies recently announced.

INDIANA PRIVATE FLYERS—Indiana's private flying advisory council, meeting recently at Indianapolis, announced an educational campaign to stop hazing and other reckless flying, with a warning that a law providing severe penalties for such flying was already in force and would be invoked against flyers who failed to respond to educational methods.

PENNSYLVANIA STATE POLICE—Aud of Pennsylvania State Police in identifying license numbers of low-flying, reckless pilots, has enlisted by William L. Anderson, State Aeronautics Director. Two Pennsylvania pilots were fined recently under a state law for low flying over populated areas. Anderson said it was a part of a state-wide campaign to correct the low-flying evil.

NEW KIDSLAND—Ray Hyatt, Rochester, N. Y. airport operator and distributor for Piper and Beechcraft, is a leader for jobless sales in the number of veterans who are taking flight training under the GI Bill of Rights. Many of those taking flying lessons, he reports, are professional men or substantial business men, who have elected to learn to fly because of the government financing, and who might otherwise never have learned to pilot a plane. A large percentage of these students have no intention of joining a plane when they start in, he notes, but are interested in the recreational prospect for some after they fly a while and begin to realize the real potential of a plane's usefulness in their business and pleasure.

HAWAIIAN PRIVATE FLYING—Hawaii chapter of the Civil Air League is campaigning for construction of an airport on Oahu for private flyers. There seems little chance that private flyers or flight training will be permitted on John Rodgers Airport, which was converted by the Navy during the war into the Honolulu Naval Air station, even though it is expected to be returned, at least partially to civil control in the next few months. On four other islands in the Hawaiian group—Lanai, Maui, Hawaii and Molokai—flight strips are now under construction which will be seen to non-scheduled and private forms.

MAIN INTEREST UNCHANGED—Bartlett Hayward division of Koppers Co., Baltimore, is still greatly interested in making Aerojet light-plane propellers, in spite of the fact that its nearest announced development (see *Production*), an eight-bladed, constant-speed propeller for a 2,500 hp. engine, is more than somewhat out of the high-speed class. The eight-blader was an experimental project for the Navy, but company production is centered on the smaller propellers for engines up to 100 hp.

CO-OP AIR SERVICE—Students at the University of Texas have formed a 180-member Co-operative Flying Service and have purchased three Cessna's for flight training and local travel. They plan also to buy a cross-country type plane. Many are retired aviators and many are new pilots. The group has a 100-hour flight school and a scheduled plane rental office. The plane will also be opened to non-members at the same rates charged by local flight service operators. Students in the co-op will be distributed to the shareholders, plane and maintenance by a local real estate broker on a contract basis, and the group will be open to all AEA members. The group's plane has been employed to service flights and to check out other students. Club members are a localizer stick with wings. Officers are Travis Williamson, president; Helen Gargner, secretary; R. L. Templeton, treasurer; and the following: Bill Dumas, Dr. C. C. Collier, Dr. John H. Friedman, and Dr. M. Thompson.

Alexander McKeown

Flight Tests Pushed On All-Metal Plane

Mayra Aircraft planning production on two-place MAC-12SC.

Mooney Aircraft Co., Tecumseh, Mich., expects to complete flight tests on the company's new two-place, all-metal sportplane, Model MAC-120C, by early summer, and to commence volume production as soon as the prototype is approved by CAA.

President A. H. Meyers reports that the plane has been flying since Feb. 1, and that its flight characteristics and performance are highly satisfactory, with a top speed of 140 mph., a cruising speed of 120 mph., a landing speed (with flaps) of 45 mph., a 700-ft. rate of climb, and a 500-mile range. These performance figures are from actual flight tests, and the company expects to guarantee them.

The MAC-129C, which is powered with a 125 hp Continental engine, has exceptionally good visibility due to its sliding canopy design. The canopy is lowered by hand, which are restricted or assisted by a simple hydraulic hand-pump in any reach of the pilot or passengers. Landing gear travel is 115 in., almost a third of the 35-ft. span. A window in the leading edge of the wing shows the gear in the down-and-lock position. The equipment includes hydraulic brakes and spring air shock absorbers. The full overdrive wing uses NACA airfoil section 2416 at the root and NACA 2409 at the tip. Flaps are provided at wingtip, and the flap is engaged with wing

With completely all-metal construction including wingbox, the plane may be kept outdoors without serious weather effects. President

MAC-125C Specifications

Specifications and performance data for Meyers Aircraft Corp. two-place sportplane, Model MA40-120C include:

Wingspan	30 ft.
Length	20 ft., 13 in.
Height	8 ft., 4 in.
Wing area (incl. tail)	
empty	143 sq. ft.
Wingst empty	100 ft.
Gross weight	3725 lb.
Top speed	143 mph
Cruising speed	120 mph
Landing speed (w/la.	
flaps)	45 mph
Rate of climb	700 ft./min.
Range	500 miles

Meyers states. The company has record of years of exposure to weather on the well-known all-metal Meyers biplanes, Model OTW, which showed no signs of deterioration due to exposure.

A useful load of more than half its empty weight will be earned by the MAC-120C, a load of 583 lb. Luggage compartment has 50-lb. capacity, and the plane carries a gas load of 35 gals. and 2 gals. of oil. A DeLco-Remy starter and generator are provided.

President Meyers advises that the company will follow its previous merchandising plan of marketing its new plans through airport service operators, since it considers them the logical outlets, rather than department stores and downtown salesroom outlets.

Parks Takes Over Pal-Waukee Airport

Parks Aircraft Sales and Service, Inc., last week went to take possession of Pal-Waughan Airport, Wheeling, Ill., 22 miles northwest of the Chicago Loop, following recent purchase of the field from Owen B. Jones of Lake Forest, at an undisclosed price. The 90-acre field has three 16-ft wide runways.

runways, 2750 ft., 2100 ft and 1800 ft. long. Present buildings include two large hangars and three individual T hangars.

Oliver Parks, E. St. Louis, Ill., president of the purchasing company, which has been operating at the airport for several years, announced plans to spend \$140,000 for 100 individual hangars, and \$25,000 to \$35,000 to improve general buildings and field facilities. The Parks operation includes the distribution of Freewayer in cooperation with Marshall Field & Co. in downtown Chicago, and a general aircraft service and repair station. Approximately 25 planes are based at the field.

George J. Edgcombe of Mt. Prospect, Ill., former leasee of Fair Weather will continue to lease space on the field for the operations of Tuff and Edgcombe, Inc., distributor of Piper Cube and Fairchild, and a charter service operation.

Parks Aircraft Sales and Service, Inc., last week was to take possession of Pal-Waucher Airport, Wheeling, Ill. 32 miles northwest of Chicago, following recent purchase of the field from Owen B. Jones of Lake Forest, at an undisclosed price. The 90-acre field has three 16-ft. wide gravel



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New Meyers MAC-22C: The new Meyers Aircraft Co. Model MAC-22C, an all-metal two-place sportplane has retractable landing gear, slatted wing flaps, and a 260 mph cruise speed at 125 mph. The experimental prototype shown in three-quarters front and three-quarters rear views, is being flight tested at the Meyers plant, Tecumseh, Mich.

PERSONNEL

TACA Appoints Three From Domestic Lines

TACA Airways System announces appointment of **George E. Michael**, left, as systems manager and interface manager. He has been manager of the travel department of Eastern Air Lines. **Robert F. Brodsky**, right, who was with TACA for 31 years, has been



named superintendent of schedules and tariffs for TACA. He was named to the vice-president in charge of traffic at TACA. **Robert V. Kault** has been named assistant to **George T. Cason**, regional traffic manager of TACA. Before joining the ATU, Kault was superintendent of reservations for Mid-Continent Airlines.

Former Brewster President Named Executive of Ranger

George J. Chapline (photo), former vice-president of Wright Aircraft



Corp., has joined the Ranger Aircraft Engine division of the Packard Engine and Airplane Corp. as assistant general manager. He served on the staff of Major Archibald Wright during the war. Chapline joined Wright in 1938 as service manager and rose to be vice-president in charge of sales and service and a director of the corporation. He left Wright to become president of Brewster Aircraft Corp., company which he was called to active duty.

Leslie Conely Robert J. Boylen, after four years in the Navy, has joined **Pacific Air College** as director of public relations succeeding **Ernest M. Feltz**, who has been dividing his time between the school and Pacific Aircraft Sales and Service. Before the war, Boylen was a newspaper reporter and a member of the public relations department of Metro-Goldwyn-Mayer Studios.

Charles R. Culvin, New York, a former aeronautical engineer, has been elected to the board of directors of the **Woods Manufacturing Co., Inc.**, and the **Woods Tool Corp.**, both of Bloomfield, N. J. Culvin was founder and president of the Pioneer Instrument Co. and since 1944 has been an engineering and administrative consultant to the Navy Bureau of Aeronautics. He is an associate fellow of the Royal Aeronautical Society.

Edna Emma Reed, who has been manager of the news bureau of **Pan American Airways**, has become public relations manager for **Air France** in North America. Reed has been a newspaper man and a radio commentator.

R. B. McGinnis (photo) has been named assistant advertising manager for **Western Air Lines**.



McGinnis was with United Air Lines for 16 years before joining Western. The appointment comes at a time when Western is embarking on a national advertising campaign to familiarize the public with the service it affords as the "Skyway to the Nation's Playgrounds."

Carl Allen A. Harris has joined **Aviation & Associates**, aviation consultants with headquarters in Los Angeles. Harris was with Western Air Lines before joining the Air Transport Company, where he was assistant chief of staff for the flying division.

Leslie Candlerbeck has returned as investigator in charge of the safety bureau of the CAB in the seventh district in Seattle, after three years in the ATU. He replaces **Carl E. Elenowich**, who has been assigned to the Middle West.

Conquistadores del Chile, social organization of the aviation and allied industries, has started the following officers for the coming year: **Chair** **Maynard** of Jacksonville, chairman of the board; **Carl B. Spang**, vice-president of Lockheed Aircraft Corp., president; **Asbury Kell**, aviation sales manager for Texas Co., first vice-president; **Paul Riddle**, vice-president of TWA, second vice-president; and **Charles E. Buckmaster**, president of Shell Louisiana, Inc., secretary and treasurer.

M. F. Buckley (photo) has been named manager of cargo sales for United Air Lines with headquarters in Chicago. He succeeds



Paul E. Barback, who last headed air cargo sales and general manager of the National Stationers' Association. Buckley was district traffic manager and sales manager for United in New York before joining the Air Transport Company.

Walter A. Spruck (photo) is the new chief projects engineer for **North American Aviation, Inc.**, near



Franklin D. Walker, who has resigned Spruck was chief engineer of **Kellogg City** and division engineer at **Dallas** for **North American** during the war. He has been with the company for 16 years and was project engineer on the early B-29 Superfort.

James E. Boyce has been appointed eastern regional manager for **Lockheed Aircraft Service** to direct all airline service activities out of the Minneapolis and in Canada.

Peter Alkenen has resigned as a member of the board of directors of **Aviation Aircraft Corp.** to continue and widen his consulting practice in the aircraft industry. He still will receive stockholders' fees. **Franklin D. Walker** has joined the public relations staff of **Packard Engine & Airplane Corp.** as office of the President. He formerly was magazine editor of **Planes** magazine. He replaces **Allen W. Harris** who has resigned.

Capit Oliver A. Sanderson (photo) has been named operations manager of **Pan American Airways'** Latin American division.



He has been flying for Pan Am for 35 years and has recently served as a group of three managers of the Pacific-Alaska division. **Sanderson** has reported Pan Am from the AAF and has been assigned as station manager at St. Thomas, Virgin Islands. He has been active in **Comodoro**, **Medellan de Aviacion**, PAA affiliate in Mexico, and **Aviacion**, PAA affiliate in Colombia.



FLAGSHIPS IN THE MIDNIGHT SUN

Serving nine days time, planes of **American Overseas Airlines** now fly from America to Sweden and lands of the midnight sun. To this northern season . . . trade keystone of the Baltic, gateway to Finland and Russia . . . travel is now cut to a day, by the speed of **Lockheed Constellation** and the power of **Wright Cyclone**.



WRIGHT Aircraft Engines

WRIGHT WRIGHT Wright Aircraft Corporation • Paterson, New Jersey U.S.A.



Men who keep posted on all phases of aviation realize that commercial aviation gasoline has by no means reached its ceiling of antiknock quality. Now, vastly improved fuels—made possible by modern refining methods and the use of Ethyl antiknock fluid—will permit the development of even more efficient engines to carry greater payloads at lower costs.

Ethyl Corporation
 Chrysler Building,
 New York City



Manufacturers of Ethyl fluid, used by all companies
 to improve the antiknock quality of aviation and motor products.

PRODUCTION

Counter-Rotating Prop Research Meets Jet Propulsion Challenge

Eight-bladed Bartlett-Hayward and Hamilton Standard types indicate new efforts by manufacturers to absorb higher engine powers without increasing tip speeds.

By ALEXANDER MCMURLEY

Announcements by two different manufacturers in close succession of the development of counter-rotating propellers with eight blades each indicates that the propeller makers are redoubling their research efforts to attain structures that can handle higher horsepower in the face of competition from jet propulsion.

Other manufacturers who have already built and flown good counter-rotating types with six-blades are also taking up the problem of adding more blades in order to absorb more power without increasing propeller diameter and running the risk of higher tip speeds.

Bartlett-Hayward Prop.—Bartlett-Hayward Division of the Koppers Co., Baltimore, last week announced development of an eight-bladed, counter-rotating propeller with 11 and one half ft. blade diameter, designed for a 3,300 hp engine and for an airplane with a speed of more than 400 mph. The unit was developed in cooperation with the Navy Bureau of Aeronautics.

This release was made only a few days after the announcement of the eight-bladed Hamilton Standard counter-rotating propeller which was being used on the new Northrop XH-40 flying wing bomber (AVIATION NEWS, May 6). The Hamilton Standard props have a 15-ft., four-in. diameter, are hydraulically controlled and have reversible pitch. They will be used with Pratt & Whitney Waste Major R-4380 engines of 3,600 hp.

Use Airspeed Drive.—The Bartlett-Hayward announcement was the company's first indication that it had gone outside the light-plane propeller class. The four-bladed Automatic propeller which it has been making for small aircraft has received considerable industry recognition, mainly because of its in-phase pitch change mechanism,

which operates without attention by the pilot.

Primary pitch change mechanism is incorporated in the big eight-blader. It relies on a system of counter-weights attached near the blade hubs, which cause the blades to turn into high or low pitch in accordance with forces of flight. At takeoff, the propeller goes into low pitch.

As the plane climbs, pitch increases automatically and the propeller makes similar adjustments for level flight and for landing. The action of natural forces eliminates the need for an electric or hydraulically actuated pitch changing mechanism.

Flexible-Flywed Blades.—The result as applied to the eight-blader, Bartlett-Hayward asserts, is perhaps the lightest high-horsepower propeller ever constructed. Yet another factor in the lightness is

the use of blades of high-strength, plastic-based plywood, covered with Aerobond plastic, which weighs less than half the weight of comparable solid metal blades. Extensive propeller research starting shortly before the war resulted in the development of at least three-blade counter-rotating propellers in this country by Hamilton Standard, Curtiss and Aeropropuls, as well as other six-bladers by Dowd and DeWittsford in Great Britain and at least one German six-blader. None of these saw extensive service in the war.

Perhaps the most successful demonstration yet of an American counter-rotating six-blader was the record transcontinental flight of the twin-engine engine-powered Douglas XH-40. McCormick experimental leader which carried a six-blade Curtiss counter-rotating propeller at its tail.

Counter-rotating Advantages.—Propeller engineers have been anxious for many years of the advantages of counter-rotating propellers, particularly as aircraft powerplants move to higher and higher horsepower.

Advantages of this prop type are:
 1 Use of more blades supplies more blade area to absorb engine power, without increasing the diameter of the propeller and thus increasing the tip speed.

2 Turning two sets of blades in opposite directions eliminates engine-propeller torque, the rotational force exerted against the airplane by a one-direction propeller and shaft.

3 **First Flown in 1921.**—Records indicate that probably the first counter-rotating propeller was flown in this country in 1921, although patents on essentially similar systems were issued earlier.

Probably the most spectacular pre-war flight with a counter-rotating propeller was that made in 1934 by Francesco Agello, Italian pilot, in an Italian March airplane, when set a world speed record of 448 mph. The record stood for six years.

Six years ago, Col. Howard M. McCoy, Wright Field AAF propeller engineer, then testing an experimental Hamilton Standard four-blade counter-rotating propeller in flight, predicted that eight-blade propellers would be commonly used within the decade.

Cast-Iron Wheelless Sues.—Jet propulsion enthusiasts who were at first inclined to discard the propeller as obsolete with the advent of direct thrust from the engine, have

P-V Changes Name

A reorganization of the financial and production functions of P-V Engineering Forum has resulted in a change of name and the first chairman will be the former president of the P-V Engineering Forum.

The officers—E. H. Pascoe, president; H. R. Pascoe, vice-president; H. R. Pascoe, secretary; and H. R. Pascoe, treasurer—will continue in their same positions.

The Pascoe Helicopter Corp. entered the rotary rotor competition and by the P-V and subsequent models. This type of helicopter has now had more than a year's extensive flight testing and is making a name for itself in speed, accuracy, balance and control characteristics.

THIS Silver-Brazed BOND

GIVES EXTRA STAMINA

Armature coil terminal

Commutator bar

TO G-E AIRCRAFT GENERATORS

An exclusive feature of G-E aircraft generators is the silver-brazed bond that joins the armature windings to the commutator. This feature permits the generator to take short-time overloads which would normally cause failure in a tin-soldered commutator.

In other words, one of the chief causes of heat failure has now been effectively eliminated. G-E generators can thus be made smaller and lighter without fear of damage from overheating. Stop time for generator repair and overhaul is reduced. The over-all service life of such units is considerably lengthened.

Silver-brazing of vital connections is typical of the care that goes into the manufacture of G-E aircraft generators. For example, armature and rotor are protected against severe operating stresses, temperature extremes, and electrical losses by these additional construction strong points.

GLASS INSULATION

Used throughout to add greater resistance to overheating. An insulated coating on the armature punchings means low core losses. Slots are cushioned with strands of glass fibre.

FORMEX® WINDINGS

Armature and field coils are made with space-saving Formex wire, fused for its resistance to high temperatures, moisture, and corrosion. High-strength bakeling wire firmly bonds all windings.

SPARKLESS COMMUTATION

Compressed, impregnated stator field windings ensure sparkless commutation at all loads and speeds within the generator's rating and at high altitudes. Brush maintenance is kept to a minimum.

*Brush mark up 2-5/16 in. dia.

GENERAL ELECTRIC



Built to withstand hard usage...

In addition to the silver-brazed connections shown above, G-E aircraft generators are doubly protected against relaxation, racking vibration. A flexible shaft within the armature shaft prevents harmful engine impulses from reaching the armature assembly. It also acts as a flexible coupling between the generator and the engine. This inner shaft is further protected against breakage by a vibration damper drive. The mounting flange is specially designed and fabricated of forged steel to absorb hard punishment.

Aircraft manufacturers and airline operators, relying that the planes of tomorrow will be judged on their ability to stay in the air and out of the repair hangar, are more and more looking to G-E for help on their electrical problems. General Electric designs and produces complete aircraft electric power systems in addition to such individual equipment as generator, voltage regulators, inverters, cables, etc. Then, G-E is in a position to offer wide experience, extensive engineering and testing facilities, and manufacturing "know how." Why not call in a G-E engineer now to discuss your electrical requirements? *Aircraft Dept., General Electric Company, Schenectady 5, N. Y.*



DIRECT-CURRENT GENERATORS are widely used for single-engine planes, and combine high output with light weight and small size. Two or four-engine planes use them in parallel with voltage regulators at least four-wire load requirements. Type H-2 is rated 250 amperes at 30 volts, with speed range of 2,250-3,150 rpm, 1,420-2,000 rpm, or 1,600-2,000 rpm. Type H-1 is 1-1/2 amperes at 30 volts, with speed range of 1,600-2,000 rpm, and 1,500-2,000 rpm. Type H-1-1/2 is 1-1/2 amperes at 30 volts, with speed range of 1,600-2,000 rpm.

AC Constant-Frequency GENERATORS

AC power systems for large aircraft are now made possible through the use of G-E 440-volt, 60-Hertz, constant-frequency generators. Capacities include 50 kw, 100 kw, 150 kw, 200 kw, 250 kw, 300 kw, 400 kw, 500 kw, 600 kw, 700 kw, 800 kw, 900 kw, 1,000 kw, 1,200 kw, 1,500 kw, 2,000 kw, 2,500 kw, 3,000 kw, 4,000 kw, 5,000 kw, 6,000 kw, 7,000 kw, 8,000 kw, 9,000 kw, 10,000 kw, 12,000 kw, 15,000 kw, 20,000 kw, 25,000 kw, 30,000 kw, 40,000 kw, 50,000 kw, 60,000 kw, 70,000 kw, 80,000 kw, 90,000 kw, 100,000 kw, 120,000 kw, 150,000 kw, 200,000 kw, 250,000 kw, 300,000 kw, 400,000 kw, 500,000 kw, 600,000 kw, 700,000 kw, 800,000 kw, 900,000 kw, 1,000,000 kw, 1,200,000 kw, 1,500,000 kw, 2,000,000 kw, 2,500,000 kw, 3,000,000 kw, 4,000,000 kw, 5,000,000 kw, 6,000,000 kw, 7,000,000 kw, 8,000,000 kw, 9,000,000 kw, 10,000,000 kw, 12,000,000 kw, 15,000,000 kw, 20,000,000 kw, 25,000,000 kw, 30,000,000 kw, 40,000,000 kw, 50,000,000 kw, 60,000,000 kw, 70,000,000 kw, 80,000,000 kw, 90,000,000 kw, 100,000,000 kw, 120,000,000 kw, 150,000,000 kw, 200,000,000 kw, 250,000,000 kw, 300,000,000 kw, 400,000,000 kw, 500,000,000 kw, 600,000,000 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new revised their thinking. They see an important place for the propeller on all long-range airplanes because of economy, at least for a number of years.

Research by National Advisory Committee for Aeronautics with sweep-back propeller blades indicates that they may be whirled efficiently at higher speeds than was ever expected for the conventional straight blades. These findings, together with new counter-rotation research, point to a new lease on life for the airplane propeller in high horsepower airplanes.

Release New Reports On Turbine Alloys

Chemical and physical properties of alloys potentially useful in the construction of gas turbines operating at 1250 to 1500 degrees F. are tabulated in four new reports.

The reports cover results of tests on alloy responsiveness conducted during the war at the U. S. Naval Experimental Station, the Massachusetts Institute of Technology, the Westinghouse Electric Co. and other laboratories.

Besides tabulating results, the reports summarize conclusions as to the best alloys tested.

The reports in brief cover:

► **PT-15132**—Test results for tension, stress, creep, and existing oxidation factors for alloys. It also includes Charpy impact, hardness, thermal expansion, and damping capacity (photostat 19, microfilm, \$1.50, 120 pages).

► **PT-15133**—Results of chemical analysis, short-term stress, stress rupture, creep and sealing tests for highly alloyed compositions (photostat 22, microfilm 50 cents, 30 pages).

► **PT-15134**—Results of tests in construction of those covered in PT-15132. It also includes other alloys, particularly cast materials (photostat 16, microfilm, \$1, 80 pages).

► **PT-15135**—Data on a bar stock alloy and several cast iron from large forgings and castings. Results of visual X-ray and metallographic examinations are given as well as tests as stress rupture, creep, relaxation, thermal expansion, and seizure (photostat 16, microfilm, \$1, 77 pages).

Orders should be addressed to the Office of Publication Board, Department of Commerce, Washington 25, D. C., and be accompanied by check or money order payable to the Treasurer of the United States.

Features of New Flying Wing Seen Adaptable to Sonic Speed

Sweep-back wing similar to NACA airplane design, while power unit placement is thought ideal for turbo-jet or rocket; flight test reported set for June

Flight tests of the Northrop XB-35 are reported this week to be scheduled for June as the revolutionary AAF Flying Wing bomber starts through one of the most elaborate series of trials yet devised. Conducted jointly by Northrop Aircraft, Inc., and the AAF Materiel Command, the test program will start soon with preliminary ground trials of the prototype at Naval Air Base, Calif.

Meanwhile, as the industry studies the first reports of the new plane's specifications, engineers this week point out features that may make some adaptation of the Flying Wing one of the first planes to cross the barrier of sonic speed.

► The similarity between the sweep-back wing which John K. Northrop has designed to give his aircraft stability and those which the National Advisory Committee for Aeronautics has developed for flight at speeds beyond that of sound.

► The clean and unadorned mounting of power plants at the rear of the plane, considered ideal for future turbo-jet or rocket installations.

First of an initial AAF order of 15, the 104-ft.-wide range bomber transcends the concept of an aircraft without fuselage or tail surfaces in which every square foot of surface contributes directly to lift.

By elimination of such drag-producing items as rudders, stabilizers and fuselage, the Flying Wing achieves latently a 25 per cent greater load and longer range and a 35 per cent higher speed than conventional designs of the same dimensions.

Exploitation of these advantages in more conventional forms of transport aircraft is already under consideration. A conventional version of the XB-35, now in the design stage, is claimed by Northrop to be a 100 per cent improvement in aerodynamic over conventional competition. Recent design patent awards are generously sprinkled with Flying Wing variations, including both military and commercial and piloted and robot models.

Taller details of the XB-35's structure, however, have revealed during the past week, include:

► **Cabin Arrangement**—Pressurized cabin of about 300 sq. ft. in the central portion of the wing, containing the flight and engine crew, fuel, power plant, navigation and armament instruments and controls. The pilot, co-pilot and bombardier are seated abreast within the transparent wing leading-edge, the non-pressurized rearward fuselage high in front and seven ft. high in back, the roof sloping rearward in an arched curve.

The pilot is raised to a position



XB-35's "Retractable Rudder" Seen in open position at trailing edge near wingtip or one of craft's novel clam-shell type drag rudders.

within a bubble canopy to provide a light field of view. All of the flight controls are the navigation, manual or operator and flight engineer positions with accompanying controls and equipment of individual tables. The upper and lower line control consoles are mounted in forward, plastic enclosures. All of the flight deck are the banks and provisions for the air crewmen off duty.

Power Plants—Completely buried power plants, with the four giant 3,600 hp Wasp Major engines mounted backward in the central portion of the wing chord at its greatest thickness. Each engine drives two four-bladed, constant-speed propellers. Forward extension shafts projecting upward and outward from the wing.

Each engine mounts dual turbo-superchargers and includes a giant cooling fan on its forward side. Air for cooling the engines, superchargers, heat-exchangers and oil coolers and for supplying the nuclear is supplied from long, centrally-located air intake ducts in the wing leading edge.

Fire Power Control—Remote-control, power-operated gun barrels, as disposed as to completely eliminate "blind spots". The machine gun barrels are mounted in the wing outboard of the bomb bays and are sighted and fired by a central station fire control system. The upper turret mount four 30 cal machine guns, the lower turret two 30's each.

Hugest fire power, however, is contained in the tail "stinger", a streamlined, missile structure projecting from the wing trailing edge apex and extending beyond the propeller span. It is mounted in a universal joint, providing coverage of the entire arc hemisphere of fire. Various combinations of 36 cal machine guns, 28 mm, and 37 mm rockets may be installed in the turret, which is controlled above the horizontal by the upper sighting station and below the horizontal by the belly sighting station, control passing automatically between the gunners.

P.A.C. Electrical System—An alternating-current electrical system, the first to be used exclusively as a source of power in a combat plane. The 400-volt, 400-cycle, 115-amp system is light, more compact and provides greater energy for mechanical input power than the familiar 12 or 24-volt d.c. systems used on the other types of combat vehicles.

Redhead Canopies—An extremely red-hot, but effective control sys-

tem which, in steady level flight, lies entirely flush within the wing and appears as ordinary conventional appearance and operation within the pilot's cockpit. Directional control is obtained by the "adder", which consists of two slant-shaped surfaces in the wing-tip trailing-edge functioning much like the familiar right diving brake installation on conventional aircraft.

Operation of the rudder pedals spins one or the other sets on a wing-tip, providing the required drag at the extreme tip and "pulling" the inside wing back at the outside wing, with rudders closed, wings around as desired. Lateral and longitudinal controls are conveyed into "elevons", located on-board of the rudders on the wing trailing-edge. When the pilot moves the control column fore-and-aft, the elevons move up and down in unison. As the column is moved laterally, the elevons operate differentially, as in the case of conventional ailerons.

Conventional wing flaps are mounted inboard of the elevons, which, together with the rudders, also deflect with the flaps providing tremendous deceleration of the craft when it comes in for a landing.

Pressures and Bellows—The controls are provided with hydraulic boosters to preserve the specified 80-lb. max. pilot force. In addition, the system incorporates "Force Feedback" which prevents sudden control movements which might overload the structure. These bellows are open to the ventrums, so that their pressure is maintained in constant ratio with the speed of the aircraft. The pilot's movement of the controls is, therefore, always the same regardless of the existing pressure, regardless of the altitude speed.



Surplus Plant Leased by Kellett—Expanded activities of Kellett Aircraft Corp. will be housed in this 420,000 sq ft, air-conditioned plant at North Wales, Pa., some 100 miles from the New Jersey defense manufacturing. Located 29 miles northwest of Philadelphia, it will enable Kellett to expedite operations now carried on in four other plants.

Kellett Takes Over WAA Surplus Plant

Company plans to double wartime peak personnel and floor space, new transport helicopter as design.

A program to expand the operations of Kellett Aircraft Corp. to a point more than twice its wartime peak is personnel and floor space has been announced by W. Wallace Kellett, president. He also disclosed that his company is planning to announce a revolutionary transport helicopter design later this year.

Kellett, which manufactures helicopters and a wide variety of metal products, will use the new facilities to produce contract-manufactured items such as refrigerators, deep-freeze units, automotive parts, electrical items and aircraft assemblies as well as its own line of transport and personnel helicopters.

The corporation has a backlog of \$1,500,000, including AAF experimental contracts on helicopter types.

Leases WAA Plant—The company has arranged to lease the large War Assets Administration-owned surplus war plant at North Wales, Pa. The 420,000 sq ft, air-conditioned plant was completed in 1942 and operated by SKF Industries, Inc.

All operations will be centralized in the new plant, resulting in the closing of four leased properties in Phila. and Delaware County, Pa.

The main manufacturing building is 320 ft by 1,800 ft, with adjoining buildings housing power, storage, paintshop, garage and engine-test activities.

Adequate space is provided in the 74-acre plot for helicopter test areas and fixed wing landing strips may be established later.

When History Repeats Itself.... PEGASUS will be put out to pasture, wings and all



Pegasus, the famous winged horse that carried Bellerophon from here to there in the old days, would have little trouble winning the Kentucky Derby—a few faps of his wings and he'd establish a new track record! But, wings and all, Pegasus won't stand a chance when Bellerophon goes calling on his best girl, Antler, for Mr. B will PLY to Corbin's in an Aerosca Changeless.

Progress has been the keynote of transportation ever since the first on-donkey cart was built. In the aircraft industry, yesterday's standards of speed and safety are outmoded by today's advancements in design and construction. With OSTUO Seamless Steel Tubing constituting important strength-without-weight advantages in every type of U-5-built plane, being mass-produced today, The Ohio Seamless Tube Company, a pioneer producer of steel tubing, keeps a step ahead of progress through expert research, experienced craftsmanship and on-time delivery, factors that have made OSTUO famous in its field.

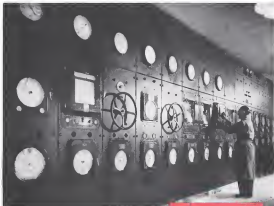
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CAB Issues New Safety Rules For Non-scheduled Carriers

Part 42 effective August 1; requirements for interstate and foreign flights general and simple, but CAA has discretion to alter them as the business changes.

The structure of government regulation in the non-scheduled air transport field is almost complete this week as the Civil Aeronautics Board prepares a statement of economic policy to follow its issuance six days ago of the first technical safety regulations specifically applied to that activity.

Under study now by large and small operators throughout the country are the provisions of CAB's new Part 42 of the Civil Air Regulations, which after August 1 will govern the operation of non-scheduled air carriers, the certification of their planes and the qualifications of their pilots.

• **May Require Reports**—Meanwhile, informed sources in the Department of Commerce indicate CAB's evidence of its policy decision on economic regulation of the same carriers and predict that the Board will continue to exempt them from restrictions in the manner of their doing business. Expected, however, is a requirement that non-scheduled operators be certified by CAB and submit regular reports that may someday form the basis for economic structure.

CAB's power to regulate the non-scheduled field has existed since the passage of the Civil Aeronautics Act in 1938, but the business was comparatively so insignificant before the war that all non-schedule commercial operators were exempted from any regulation over the rules of flight applicable to all aircraft. The expanding use of the airplane, and the availability of thousands of surplus transport planes and auxiliary young pilots have now expanded non-scheduled aviation to the point where it probably outstrips the scheduled carrier in number of planes in operation and CAB feels that some controls are necessary.

• **No Under Barrier**—While the full impact of the new Part 42 to these new operators cannot be ascertained until after full study of its technical clauses, CAB and CAA safety officials feel that the requirements will not be a burden on any of them.

"We don't think that there is anything in the part that will put anybody out of business," a CAA spokesman asserted. "The regulations represent a modest start because the Part covers a wide range of operations, from those of carriers operating a fleet of C-47's to the lone boy who will occasionally fly a passenger in a light plane."

• **Some Ideas Dropped**—In general, CAB sources say, only general regulations have been prescribed, and proposals such as requirements for company-owned communications and differentiation between single and multi-engine aircraft

have not been included.

Under the terms of the part, it will be possible to use single-engine aircraft for occasional flight operations, although some intrastate flight requirements have been tightened.

• **CAA Discretion Wide**—Because the field of non-scheduled operation is still so much in flux, the CAB has granted wide discretionary powers to CAA which it apparently expects that agency to use as various types of services become more highly differentiated.

Section 42.10, which stipulates that aircraft meet CAB certification requirements, also asserts that they shall be "of a type and class which the Administrator finds safe for the service offered," and it is felt in some quarters that this may eventually develop into separate categories for passenger and cargo planes.

• **Survey of Changes**—A check on changes in the nature of operations as they occur is provided by section 42.44 which permits CAA to alter requirements in individual cases whenever it is found "that the present standards of safety required for air carrier operations require or permit a deviation . . . for a particular operation or class of operations."

CAB feels that a periodical study of the reports which CAA must submit on these exceptions will provide a good basis for determining changes in overall regulations.

• **"Grandfather Clause"**—To cover any possible lag in the issuance of



TRACTORS TO GUATEMALA BY AIR:

Three weekly air cargo services between Detroit and Guatemala City use regularly by Atlantic Eastern Airlines, an airline owned by New York-based, Dominican plantation operator, using C-47's owned and flown by G. S. Arias, Sr. Peten, Guat., contract air cargo company. First northbound flight branches merchandise and 2,000 lbs. of freshly packed bananas. Each southbound flight will carry two tractors, about 7,000 lbs. and portable diesel, etc. Officials say cost of flying the tractors is about \$15 more than by surface routes but time saved is about three weeks. The tractors are driven into the plantations under their own power, and are ready immediately upon arrival. No disassembly, testing, or assembly is necessary. Planes fly via San Salvador and St. Petersburg or New Orleans.

certificates after August 1, CAB included what it terms a "pre-flight check" to permit operators engaged in the traffic on that date to evaluate their activities until certified, no longer as they have made application. Those who wish to do so to the business after that date, however, will have to wait for certification.

CAB also stipulates that Part 43 is applicable to maintenance, foreign and domestic operations.

Reaction of Carriers Favors New Part 42

Operators use safety rules in stabilizing influence but carry lack of clear "non-scheduled carrier" definition.

Early industry reactions reported by operators who will be affected by the new Civil Air Regulation Part 42 appear generally favorable to the new safety requirements.

First reaction, however, is that a few of the requirements may be a little "tight" and may cause additional expense which marginal operators may not be able to stand. But beyond any criticism of any specific item is a feeling that the regulation will be a stabilizing influence on non-scheduled commercial operations and will increase public confidence in the safety of passenger and cargo non-scheduled flights.

Agree In General—In principle, all those reached by AIRWAYS News are agreed that high standards of operation must be maintained, and that the new Part 42 will go far toward the end, without unduly handicapping the operation. W. K. Miller, Air Cargo Transport, reported he had seen the new regulations and considers them very good. All his organization needs to do is to file for its certificate and bring its records up-to-date. It has not a single violation of the new rules in its present operation.

Already Met Standards—Edward Jenkins, Flying Tiger, asserted that his firm is now maintaining as high operating standards as any scheduled airline. The new regulation, he says, is obviously the first step in tightening up by CAB on its original exemption order for charter flyers.

Don Carmichael, of Columbia Southern, contract and intra-state line, expressed general approval of the safety regulations, as did representatives of Wilco Air Service and Bink Airways.

Part 42 Requirements

Arrived at after hearings and revision of previous drafts for industry comment, the final sections of the new Part 42 in general call for:

- Issuance of an Air Carrier Operating Certificate by the Civil Aeronautics Administration, describing the operations and setting down operation specifications and limitations.
- Maximum aircraft instruments and equipment required for the different types of operations and standards of airworthiness.
- Pilot qualifications, permitting maximum cross-country, night and instrument flying experience for the first pilot, and for a second pilot if required.
- Higher weather minimums for alternate airports on instrument flights than are permitted for scheduled air carriers.
- Pilot flight time limitations, together with record-keeping on the make and model of the aircraft to be used.
- Maximum fuel requirements for certain flight regulation (CFR) and instrument flight regulation (IFR) flights.
- A flight record to be filed at the operating base specifying the pertinent details of each flight.
- A check-off list, to be kept in the pilot compartment at each aircraft, prescribing the procedure before takeoff.

Want Clear Definition—A. H. Cook, president of Transamerica, said that his organization had long wanted some kind of federal certification to indicate the competence of its operators. He criticized the new regulations for failure to define clearly a "non-scheduled operator."

George Beebever, counsel for the Institute of Air Transportation, believes that the new regulations follow substantially the recommendations of his organization, as letters to CAB and CAA. They asked:

- Adequate registration of all contract carriers, and periodic reports on a questionnaire form.
- Minimum safety regulations.
- Limited restricted rules confined to insurance coverage.
- Future regulation by step-by-step process rather than wholesale immediate changes.

Beebever stated that an Institute request for proposed Decree 1501 for further comment had been declined by Francis W. Brown, chief counsel. Brown wrote that the board had decided a re-hearing would cause delay and would not

be in the public interest.

State carriers affected by the proposed economic regulations believe, however, that the CAB decision on the measure will be delayed pending further information on non-scheduled operations.

Non-scheduled Line In European Flights

Venetas Air Express carries ENRRA cargo to Prague and exports containers for other foreign lands.

Venetas Air Express has completed two charter flights with its C-54 to Czechoslovakia for ENRRA and expects further contracts for service to other countries, including China. Delivery of 18 more C-54's within the next six weeks will put the company in the top category of the Nation's non-scheduled airlines.

The company's first foreign flight on Apr. 14 transported 15,000 battle-aided cases from New York to Prague. The route was via Southampton, Newfoundland, Azores, Paris, Reims and the line maintenance was provided by the Air Transport Company.

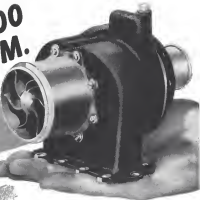
Converted C-54's—the low-weight transport used—was received only a few days before the flight to Prague and the carrier's own mechanics made the necessary conversions in three days. Because of the necessary haste and lack of water wing tanks—there are two large auxiliary tanks in the cabin—CAA gave it a temporary SK rating. On average, operations of the C-54 can carry a cargo of 13,000 lb.

The hauling jobs had to be maintained at a uniform temperature somewhere between a minimum of

Mirror By Air

On a level between New York Daily Mirror being shipped 100 lb of its daily edition to Troy and Schenectady on May 2, via Express Mail Air Transport, non-scheduled operator based at La Guardia Field with one Vero. The newspaper is loaded at night, sent from there to the house from former and delivery time. Who takes off about 10 p.m., delivers part of the shipment to Troy Municipal Airport at about 9:45 and the remainder to the County airport at Schenectady about 10 p.m. Papers formerly arrived at these cities between midnight and 1 a.m.

100,000
R.P.M.



Midget 3 lb. Turbine Cools Air 140°F.

Operating speeds in excess of 100,000 R.P.M. create air velocities up to 800 miles per hour as the new midget 3 lb. AirResearch Expansion Refrigeration Turbine, which is revolutionizing the aircraft conditioning field. This turbine—weighing only one-fifth as much as a conventional refrigeration system of similar capacity—makes possible high speed, pressurized flight by post-war commercial and military aircraft, because streamlining necessary to reach today's speeds leaves no room for bulky electrical cooling equipment.

It uses only air as a refrigerating medium, and requires no additional source of power.

It has a single moving part—and is the only mechanical unit with a self-contained lubrication system ever to operate at such high rotational speed in a fully non-reversible airplane. Produced after nearly five years of engineering research, the midget cooling turbine is another AirResearch "first".

AirResearch cooling turbines—ranging from the 3 lb. midget up to more powerful three-speed units approximately 10 inches in diameter—are being built for such planes as the Lockheed Constellation and F-80, Douglas DC-6 and B-53; Consolidated Valiant F-41 and B-46, North American B-45 and Boeing C-97. The AirResearch background of engineering skill and research is available to help solve your Air Control problems. Write to AirResearch Manufacturing Company, Los Angeles 33, California.



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48 deg or a maximum of 70 deg F. Temperature range selected was 40 to 45 deg. F. Various mechanisms installed extra gas heaters in the cabin and got more uniform heat distribution by attaching canvas sleeves to the heat-calling outlets of the register heating system. These conducted heat to the floor so that it could rise.

Western Cargo—An effort to obtain return cargo from Europe failed because of difficulties over export permits. Several flights were ordered to return with a load of Canadian-made glass and other products.

Carriers Purchase More WAA Surplus

Illinois is fast school to buy available C-47, new developments in non-scheduled industry.

Non-scheduled operators last week acquired additional surplus transport aircraft from War Assets Administration, further increasing the fleet of commercial businesses.

Setting a precedent for educational institutions, the University of Illinois' Institute of Aeronautics bought a Sperry Douglas C-47B at the regular surplus price of \$38,059. Ordinarily educational institutions use a priority to obtain aircraft at low prices for ground school instruction only for the instruments.

Illinois plans to use the C-47 for personnel transportation, as well as for use in instruction and airline operations.

Transport Alternatives—Additional recent shipments of transports are, A-C-54A to Pennair Air Transport (Harris, Texas); A-C-47 to Clay Calhoun, New Orleans; a Douglas C-47B to Wells Air Service of Teterboro, N. J.; a C-53B to Ralph Cox, New York City; a Douglas C-47B to Pacific Airlines, Los Angeles; a C-47B to Standard Airways Co. of Los Angeles; a C-47A to Samuel W. Asper, Inc. of Cleveland, Ill.; II. Lucet Condr. T. R. Work of Seattle, Wash., received a C-47B from the Coast.

This brings the total of all shipments of transports to airlines, veterans and civilian users to 126 with 686 aircraft going to domestic users and 203 to foreign.

Industry Developments—Other developments in the non-scheduled industry were:

Bureau of Travel, New York travel agency, chartered two DC-3s from American Airlines, Inc., to transport New York and Washington racing fans to the Kentucky Derby. Round trip fare, including tax and one meal each way, was \$155. The agency is considering other similar special event services.

Western Airlines, Dallas, operated by C. J. James, recently started one round trip daily to Amarillo, via Fort Worth, Dallas and Tampa, using a twin-engine Cessna

Challenger Air Lines, Salt Lake City, Utah, although failing to obtain a license to fly, continues to fly in CA's recent BAA National decision, has received a new Beech D18S and will increase service between Salt Lake City and most other Utah points it now serves.

Nightflight Airlines, Inc., headed by Robert Wurfel, president, of Dallas, has opened daily coast-to-coast cargo flights via Newark, Pittsburgh, Columbus, St. Louis, Oklahoma City, Albuquerque, Phoenix and Los Angeles. Texas points will be served later. Vice-presidents are C. F. McElroy, Los Angeles, and W. G. Bloomer, Newark.

Goldair, has been organized as a division of Grannis, Burgess & Co., insurance company, 1385 Holmes, Houston, Tex., to provide air cargo service on both certificated and uncertificated airlines. The company will arrange to lease aircraft as well as non-perishable commodities, using its own cargo planes when regular air service is not available.

Operations have been located at Managua Airport, Guatemala, via Redebac Airways, company president is spokesman William C. Barker, former general cargo sales manager of Cargus & Southern Air Lines, a business transport.

Texas Air Lines, Houston (Aviation News, Apr. 15), has added a daily round trip connecting Eagle Pass, Uvalde, San Antonio, Houston, Beaumont-Port Arthur, using a Cessna, which will cover the one-way distance in about three and one-half hours.

Air Cargo Transport Corp., Empire State Bldg., New York City, announces a contract for two plane-loads of frozen dairy from Borden's, Garden City, St. Augustine, Fla., to northern cities designated by the shipper. ACT officials and the new business followed the success of several first flights to the grocery stores. Each C-47 load will comprise 5,000-lb. of various kinds of shipments. "The short delivery time means more of the food's life can be spent in fresh shop instead of stored out as 'frozen' ACT says.

Midwest Air Transport, Inc., 11 Broadway, New York City, has been chartered in Delaware, capitalized at 10,000 shares of \$10 preferred stock, \$25,000 par a share and 15,000 par D shares. Headquarters at Flynn, 60 East 42d St., New York, are company attorneys, Flynn is former secretary of state of New York.

TRANSPORT

Airlines May Open Rate-Cut War On Non-scheduled Cargo Lines

Scheduled operators expected to go after off-route contract air freight, even though at heavy losses; would guard against anti-trust violations.

By SCHOLER RANGS

Scheduled domestic airlines soon may begin a concerted campaign against non-scheduled air freighters.

If it develops, it will be a cut-throat rate war in which the major airlines facing greater non-scheduled competition will go after off-route contract air freighters, and accept heavy operating losses to eliminate short-cutting domestic non-scheduled carriers.

Since the end of the war scheduled airlines have been selling sizable portions of their returned and new transport planes for cargo operations.

Have Delayed—At the end of April a number of major airlines were busy to absorb their cargo transports to competitive contract air freight loads and to send traffic solicitors into the field to undercut rates quoted by non-scheduled contractors.

An immediate move in this direction May 1 was delayed to await results of air freight decisions expected to take place at the National Air Traffic Conference (scheduled airlines) in Chicago last Monday. May 6 a final determination of policy was expected to come out of the top conference committee, the Assembly of Traffic Executives May 6 after considering results of a preliminary air cargo section discussion.

Hoped for Traffic Rules—Aerobic delivery factor is understood to have been the post of the major air carriers at L. Welch Packer, before leaving his post as chairman of the Civil Aeronautics Board, would this responsibility for expedient new form of tariff regulation upon non-scheduled carriers. His failure to do so, and CA's failure as a body to declare a regulatory policy covering contract air freighting have proved a disappointment to scheduled carriers.

Should the major airlines a rate war, it probably will develop

spontaneously, with little apparent indication of concerted intent. Every effort will be made to avoid action which could be interpreted as a violation of anti-trust law.

Defense Fingers—Should price cutting become intense the major carriers, if ruled on the carpet by CA, undoubtedly will question their action with the explanation that their signing of sublet air freight contracts has been in the nature of "emergency" development of new business.

Although some major airline officials are convinced that their future freight business is being jeopardized by the actions of marginal non-scheduled companies springing into existence, the feeling is not unanimous that the "little fellows" should be forced to the wall.

Phase Out Non-Scheduled—Some major airline spokesmen declare that they believe the non-scheduled operators will prove themselves to be "a definite benefit to the air transport industry" if they will only study their rates and run them to the point where they will assure profits sufficient to keep their equipment in good condition and assure a quality of service that will reject shippers set by old established carriers.

The latter views are expressed by officials who believe that the non-scheduled operators under "emergency" operation will develop business for scheduled food-cargo carriers and that the latter, in turn, will provide off-route business for the non-scheduled companies.

Where Business Chances—An expert view of major carriers of this time is that non-scheduled companies have deployed little inclination to study rates. The argument that marginal profit contracts, and wide divergence of negotiated charges for hauling similar commodities is not out of given area, will produce business chaos and demand on the part of air freight users.

Major carriers also believe that many non-scheduled operators will reach the point of major overhaul of their equipment and find themselves without sufficient profits to meet the maintenance cost, with the result that they either will go out of business or risk a series of serious accidents that will reflect against all airline operations.



STUDY COPTER MAIL POSSIBILITIES

Post Office officials flew in a Sikorsky helicopter recently on part of their campaign to gain first-hand information on the possibilities of using this type of craft for mail (and other) operations. Standing, left to right: Igor Sikorsky and Carl Griffin, Second Assistant Postmaster General, seated in the plane, J. J. Gilman, Director, International Postal Service, R. S. Burton, Superintendent of Air Mail, V. M. Waters, assistant to Gilman.

AAA Pick-up Passenger Tests Will Start in June With D18-C

CAB and Post Office Department interested in first full trials of new system; tests will be conducted on non-revenue basis pending certification by Board.

By MERLIN MICKEL

Interest of both CAB and the Post Office Department will turn next month to precedent-setting experiments by All American Aviation, a combination passenger and pick-up operation.

The carrier, pioneer and only air pick-up airline, has acquired a new Beechcraft D18-C and expects a second in mid-May. About June 1, it will begin tests in the combination service.

AAA Hopes High—Although All American has long had applications before the Board for certification to render combined passenger and pick-up accommodations, they have not been granted, and the hope is that the forthcoming tests, first of their kind, will prove the practicability of this type of service.

The first D18-C, a more powerful version of the Beechcraft 18-B than has only an NX experimental license. Late in delivery, it was on an experimental basis was approved by Civil Aeronautics Administration. The carrier, which also has 12 Stinsons and a Nordrop Hermean, will use it for fair taxi and night and day and instrument flying. After the second D18-C is received, presumably with an NC commercial license, the first will go back to Beech for any necessary modifications before its return to the company with an NC license.

Tests at 200 mph—With the experimental certification, the ship may not be used on the line as a certificated air route for its passenger-pickup duties, but All American officials expect that they will be able to start them soon after June 1. On trial flights in the meantime, the pick-up has been made with the D18-C at 200 mph, although in regular operation 155 to 165 mph will be the usual pickup speed.

Tests of combined passenger and pick-up service will be conducted on a non-revenue basis, pending CAB certification for such an operation. All American will invite anyone of known and other interested citizens to participate, and also will carry less well-known passengers in an attempt to obtain a cross-section of reactions.

P. O. Interested—Official interest in the undertaking is pronounced. Cecil Sullivan, Second Assistant Postmaster General, has reviewed that parts of this type of service be investigated, and Harlan Branch and other members of the Civil Aeronautics Board are privately enthusiastic about its possibilities. All American says.

The initial tests will be made on the line's West Virginia routes between Pittsburgh and Huntington—48A via Elkins and 48B via Parkersburg. Of the 15 permits served on these two pick-up routes, half a dozen have been selected tentatively as intermediate points where landings for passengers would be justified and airports are adequate. **D18-C Space**—The new D18-C, similar to Beech's D18-B, is a two-engine plane powered by the Wright-Continental engine that was used in some tanks during the war and was certificated only recently.



STATIC DISCHARGER:

Developed by military research during the war, static dischargers such as the one being examined here by a United Air Lines man are being installed by DAA and several other carriers. The device is a weak magnetized with a silver compound to give it electrical conductivity. About 1½ inches in diameter, the unit enclosed in a plastic tube. A dozen of the dischargers are attached to wing and tail surfaces.

Designed by Wright Aeronautical and built by Continental Motors, the engine develops 525 hp. for takeoff against 480 for the Wasp Junior used in the 18-B.

The D18-C will carry four passengers and crew with pick-up equipment or eight passengers and crew without it. Cruising speed is 190 to 200 mph, and All American expects 180-mph speed of 180 mph, compared to 150 with the Stinson the carrier has been using.

May Use Seven—The company expects to have four or five Beechcraft by the end of the year and may use as many as seven if pilot-aid plans go through. It now has 11 Stinsons and a Nordrop Hermean, and had a Douglas DC-3 which it sold last week to Trans America Airways of New York. Beech orders for the D18-C are said to total about 100.

All American plans to convert to use of the Beech planes "where possible." While the maximum of combined passenger and pickup operations are yet to be determined, the carrier is hopeful that the tests it is about to make will support both its applications for certification as a passenger and pickup carrier and extension of its present routes.

AAA Granted Temporary Service into Cincinnati

All American Aviation last week began pickup flights between Huntington, W. Va., and Cincinnati under a temporary CAB exemption authorizing the operation until American Airlines resumes service to Cincinnati. The exemption, strongly backed by the Post Office Department, represented a reversal of a previous Board order (Aviation News, March 10) which denied all American's application. All American had contended that its air mail service had suffered seriously when transline flights were suspended at Huntington, southern terminal of its system. The extension in Cincinnati, which includes two intermediate points, brings the number of communities served by All American to 121.

Lawyers Elect Pogue

CAB Chairman L. Welch Pogue has been elected new president of the American chapter of the recently-organized United Nations League of Lawyers. The group will encourage the development of law in the basis for international relations and work to maintain cooperation among lawyers of the United Nations.

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6. Brakes—Foot-operated
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Truman Action Averts Strike In TWA Pilot Pay Controversy

ALPA scores victory in appointment of fact-finding board; airlines win point in recognition of wage committee, based on influence of public opinion.

By BLAINE STUBBSFIELD

TWA pilots' threatened strike for increased four-engine flying pay was postponed for at least 30 days from last Wednesday by President Truman's appointment of an emergency fact-finding board, in accordance with the Railway Labor Act.

Strike of the TWA pilot group, variously estimated at 1,000 to 1,200 first and second pilots, which would have grounded the entire TWA domestic and foreign \$3,375-a-month system, had been called for midnight, May 1.

Victory for ALPA—Appointment of the emergency board was in apparent victory for David L. Beltsch's Air Line Pilots Association, which has been in controversy with the airlines wage committee, individual airlines, and the National Mediation Board since last January.

Beltsch had called for Presidential intervention, but the Board had declined to find the emergency necessary to such action as the ground ALPA had not furnished sufficient information to the Board on ALPA's polling of the pilots on exact date of the strike, and delay of demands Beltsch contended sufficient information had been given.

Public Opinion Factor—However, industry spokesmen and emergency fact-finding procedure would put the case largely on public opinion, which might not view with favor demands for pay increases ranged around \$3,500, bringing annual pay of some first pilots to \$14,000. Beltsch justifies the increase largely on greater earning capacity of C-54 and Constellation equipment.

Under the Railway Labor Act, the President's emergency group has 30 days in which to study the case and recommend terms of settlement, after which the union is prohibited by law not to strike for another 30 days. But no penalty is provided; the union can strike any time and face the unofficial judgment of public and government.

TWA Buys Flight—TWA, committed to keep 100 passengers up through the last uncertain hours, gambling on an actual shut-down, and expecting the line of

grounded travelers and shippers to aid their cause if it came.

The President appointed the emergency board to investigate the overall wage dispute between ALPA and the 13 operators in the four-engine category, thus recognizing the Airline Wage Committee which Beltsch had declined to recognize. The Mediation Board hopes that any settlement it may effect will cover all existing pilot contracts with reference to four-engine equipment.

C-54A and PB53A Removed From WAA Allocations List

With 11 Douglas C-54A's in surplus April 30, this plane has now been removed from allocation and may be purchased directly from surplus stocks, War Assets Administration has announced. Price is \$75,000.

Formerly military troop carriers and cargo planes, the C-54A's have folding troop benches and four tail tanks in the fuselage, plus four wing tanks. The surplus ships are at Augusta, Ga., and Wheeling Ridge, Ark.



VIKING READY FOR SERVICE

First British-built plane to replace American types in postwar British air transport is the 27-passenger Viking Viking, interior of which is shown above. The four-engine, medium-range ship is to go into service (due month) on British Overseas Airways' England-Europe routes.

Three of them were included in WAA's recent thirty-second allocation of surplus transports. Two went to Alaska Airlines and one to Peninsula Air Transport of Miami. Two C-54B's, which remain an allocation, went to Panagra and one to American. A Beech AT-7 was allocated to the Civil Aeronautics Administration.

WAA also has removed Consolidated PB53A's from allocation. Ten of these twin-engine amphibians, used as a patrol bomber and in other roles, are up for sale, one at Harvey Point, N. C., and another at Cuero, Tex. Price is \$24,000.

Examiner Would Grant Mail to Alaskan Line

Wide expansion of local air mail service along Alaska's northeastern coast from Kotzebuk north to Jussau, Sitsa and Skagway was advertised last week by CAB Examiner Raymond W. Skaggs.

Alaska Coastal Airlines, Jussau, was recommended for certificate amendments authorizing carriage of mail over its existing passenger-property routes between Jussau and Kotzebuk and Sitsa. Skaggs also asked approval of the carrier's application for a regular mail-passenger-property route between Jussau and Skagway.

Ellis Air Transport, Kotzebuk, was recommended to carry mail, in addition to persons and property, over its Kotzebuk-Jussau route. The examiner asked the Board to place a seven-point limitation on the certificate amendments.

Here's the Inside Story of the New Martin Airliners!

Now being built for nearly half of the nation's airlines, new Martin transports offer the best word in speed, luxury, dependability. While interior arrangements vary according to the needs of the different lines, photos on this page will give some idea of how you'll travel next year when you fly the Bess that offer these ultra-modern Martin airliners! See GARDEN L. MARTIN COMPANY, BAYVIEW 3, MAZELAND.

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Interior of Martin will provide, thermodynamically controlled, give smooth weather decks. Larger new dining spaces lavatory. Some models include smart design.



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Low time at airports. Two, with no need for taxiing to one of many taxiways that permit take-off, taxi, maintenance, etc. Low noise level, low maintenance costs. Low weight. The four-engine, medium-range ship is to go into service (due month) on British Overseas Airways' England-Europe routes.



200 m.p.h. New Martin cruise at 200 m.p.h.—120 m.p.h. faster than previous transports—thanks to powerful Pratt & Whitney D5000 p. engines plus jet exhaust thrust, followed by Martin in 1939.



Below is the first Martinically designed, air conditioning, air conditioning and vibration, air conditioning. Some models include provision for flying over water.



DOUGLAS VETERAN:

Western Air Lines groomed and reconditioned one of its original Douglas C-47s for the carrier's 25th birthday celebration recently at Burbank Airport, Los Angeles. The plane is shown between Airmail's huge Douglas C-54 in the background and a DC-4 in the right foreground.

ALPA Takes Issue With ATA on Hours

Beltschke says pilots oppose raising time limitation on transcontinental routes without extra pay.

The Air Line Pilots Association has taken sharp issue with recommendations by Air Transport Association officials (AVIATION NEWS, May 4) that pilot hour limitations for domestic flights should be relaxed to permit long-range transcontinental operations under the same flight time rules governing international carriers.

David L. Beltschke, ALPA president, told a CAB examiner at pilot hour hearings that his group emphatically opposes ATA's idea that the Board raise the domestic flight time limitation from eight to 12 hours when a third and undefined flight crew member is aboard.

ALPA Candidate—ALPA, Beltschke continued, would approve non-stop operations of more than eight hours only if the third flight crew member in another first pilot, rather than a flight engineer, radio operator or navigator. He said the rules governing foreign flights in Part 41 of the Civil Air Regulations constituted a "hardly-erected wartime measure which CAB, in the interests of air safety, should not place in effect on domestic routes because of pressure for non-stop, coast-to-coast one-way operations."

Beltschke predicted that Part 41 provisions on pilot hours might show need for complete revision

after another year's experience with new, four-engine equipment.

Candidate—Mr. Beltschke—The regulations governing international operations in Part 41 and the rules for domestic operations in Part 41 cannot be combined without emphasizing expediency over air safety, Beltschke asserted.

While approving some limitation of total "on duty" time, Beltschke warned that such a restriction would not supplant flying time restrictions. He pointed a total on duty limitation of not more than 18 hours with two pilots and said flying time with the doctor and heavier equipment now means this can should be reduced from eight to seven hours in any 24-hour period.

Both ATA and ALPA will file briefs to the hearing next month week, and an examiner's report will be made before CAB promulgates any necessary changes in pilot hour rules.

New Tariff Procedure

The Civil Aeronautics Board is considering an Economic Regulations amendment authorizing the CAB Economic Affairs Division to approve or disapprove applications for tariff changes which do not involve new and substantial questions of policy (see special report of the Director the applicant may make tariff changes on less than statutory basis. The applicant may request amendment of the Director within the proposed tariff change.

TWA to Decide Soon On Italian Routes

TWA probably will decide by the end of this week whether it will continue to participate in formation of an airline to operate on Italian routes. Withdrawn from its contract with the Italian government has been under definite consideration since British objections (AVIATION NEWS, April 29) to its exclusive service embarrassed the U. S. State Department and derailed what TWA thought was a settled situation.

The British objected to features of the agreement whereby TWA would retain a rehabilitation of Italy's commercial aviation through a 40 percent interest—with the 40 percent held by the Italian government and Italian interests acceptable to TWA—in a company which was to have exclusive 30-year rights to operate a network of routes in Italy, Sicily and Sardinia.

Beltschke Warns—Beltschke also has expressed a desire to participate in the operation, and it appeared likely last week that the contract would be modified through elimination the word "exclusive," and addition of a clause making it possible for the agreement to be passed on by the Combined Chiefs of Staff and the Allied Control Council, both of which told the Italian government in March it could recommend internal civil aviation.

Denver Fender to Start Operations Next Fall

The recently-certificated feeder routes of Ray Wilson, Inc., Denver, will be operated under the name Western Air Lines, Inc. Ray Wilson, president, and F. W. Beardsley, vice president, have announced.

Dier in preparing proposals for transport service is expected to postpone initial operations along the Denver-Mountain routes until late Fall. First service will probably be on the north-south leg from Salt Lake City to Albuquerque via Grand Junction, Colo.

The company may use reconditioned DC-3's.

Two Other Lines Plan—Sawatch Airways, Laramie, Wyo., and Orlando Airlines, Orlando, Fla., both recently-certificated feeder lines, hope to begin operations in their new routes by mid-July. Orlando may start service as Florida Airways under a transportation now in progress.



When you put your Stinson Voyager 150 into a climb, you can sit back and relax... confident that it will take you over the mountains ahead. With this plane, you don't have to waste time and fuel in searching for climb altitude. The Voyager 150 climbs at the rate of 770 feet per minute, has a service ceiling of 14,000 feet.

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The Voyager 150 puts you in easy reach of everything! It cruises at 165, has a top speed of 185 miles per hour. You can make a 300 mile trip in an afternoon.

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Standard under Civil Aeronautics Administration
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inside and out the Voyager 150 is a handsome plane and a handsome one. Seats are nicely upholstered and individually adjustable to your comfort. The cabin is carpeted and has controlled ventilation. From its trim cockpit to its carefully designed cowl, the plane's a thoroughbred!

Your choice of two striking color combinations—blue-and-white and maroon-and-grey. And in the Voyager 150 "handmade is no handmade does!" This plane carries a useful load of 844 pounds.

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Built by the company that has achieved a worldwide reputation for quality personal planes over the past 20 years, the Voyager 150 is now selling off the production line. See it at your Stinson Dealer's, or write for a free illustrated brochure to Stinson Division, Consolidated Fisher Aircraft Corporation, Warren, Michigan.

PICAO Interim Assembly Meeting Faces Large Volume of Detail

Major policy clashes unlikely as 44 countries prepare for Montreal session May 24. Dr. Warner believes Permanent Convention will be ratified by 1947.

MONTREAL (Special)—A considerable volume of routine work from the first meeting of the Interim Assembly of the Provisional International Civil Aviation Organization opening here May 22, but the conference, it now appears, is unlikely to encounter any serious policy problems.

The Assembly will study and act on the results of nearly a year's work by the Interim Council, its committees, divisions and subcommittees. It will discuss the Permanent Convention, recommend Aviation and consider the budget for next year and PICAO's relations with other international organizations.

But its job is fairly clear-cut, regarding a working out of details rather than solutions to basic problems.

Commercial Rights—From the complex question of commercial rights in international aviation, which bogged the 1944 Chicago Conference and was eventually left untried, has worked itself out to a large extent. The United Kingdom and United States, the two poles of the Chicago dispute, have come to terms in a bilateral agreement negotiated this year in Bermuda.

Several possible formulae for a negotiated agreement on commercial rights have been suggested and a Council committee, composed of the principal airlines concerned, has studied on a project which will be submitted to the Assembly.

Main Agenda Items—The Assembly's agenda will center about the bulky report of the Council, which reviews work accomplished and indicates subjects on which action is required. Among principal items are:

- ▶ The draft multilateral convention on commercial air rights.
- ▶ The financing and organization of PICAO regional organizations.
- ▶ The draft international standards and recommended practices prepared from the technical annexes adopted at Chicago.
- ▶ Arrangements to be made with other international bodies to facilitate the work of the organization.
- ▶ Selection of a seat for the permanent

International organization. On the last question, the Council's report puts it up to the Assembly to decide whether the permanent Convention is likely to come into force in less than a year and whether preparatory action is needed.

Permanent by 1947—The Permanent Convention indicates effective when 25 nations have ratified it. At present eight ratifications have been deposited with the U. S. State Department and Dr. Edward Warner, president of the Council, believes the required number will be in by the end of the year.

The Assembly will also have to consider filling the vacant seat on the 11-member council, left open at Chicago, in the hope that Russia would eventually join PICAO.

The Assembly will meet in Montreal's Windsor Hotel, site of the first Council meeting last August, and is expected to last for about two weeks. Forty-two member nations of PICAO are to be represented, but the total number of delegates and officials is not yet known.

Also in doubt is the diplomatic level of the meeting, which will largely determine the nature of the Assembly's actions. Basic questions of policy are reserved to the Interim Agreement or Permanent Convention are unlikely if the delegates are of the executive status of director-general of civil aviation, as appears probable now.



TACA TO GUATEMALA: TACA plans a Guatemala City, Guatemala, which became the focus of the work on the line's daily Panama-Mexico City and Panama-Havana flights.

ATA Honors Pogac

Civil Aeronautics Board Chairman L. Welch Pogac, who will leave the Board soon to return to private practice, will be honored by the Air Transport Association at a reception in Washington Wednesday. Guests will include James M. Landon, who has been nominated to succeed Pogac June 1, heads of the airlines and their representatives, other CAB members and officials of the Civil Aeronautics Administration, State Department, and ATA. Mr. Pogac will be presented with a silver tray on which the names of all airline presidents will be engraved in their own handwriting.

Hawaiian Airlines, Ltd. Reports Heavy Traffic

Air travel in the Hawaiian Islands, virtually unimpeded during the war years by persistent military business, has shown a heavy surge in recent months, according to a report by Stanley C. Kennedy, president of Hawaiian Airlines, Ltd. The total of 69,938 passengers carried by Hawaiian in the first quarter of this year was 16,680 passengers and 82.3 percent higher than the same period of 1945.

With only two DC-3s, the carrier recently has been handling an average of nearly 600 passengers daily between the islands of Oahu (Honolulu), Hawaii, Maui, Molokai and Kauai. Increases are expected when more equipment gets into service. Ford Stuckelberg, operations vice-president, flew another DC-3 from the mainland recently, and another, to carry 34 passengers, is being converted to the "passenger" stage and should be ready about June 1.

Expansion Plans—Currently, Hawaiian operates 12 scheduled trips daily, with half-monthly reduced to 15 minutes. In addition, twice weekly service is being run as much as the limited equipment permits.

Passenger routes are to be extended to Launi and schedules to all the islands will be increased by two Boeing DC-317s now on order are delivered, probably late in June. Hawaiian last year operated 6,865 flights, compared with 4,532 in 1944. The passenger total was 199,493, against 144,342 in 1944.

The airline has a safety record of no passenger fatalities or injuries in over 12 years of operation.

Smaller Lines Attack PCA-NEA Merger Plan

Colonial-owned PCA will pay too much, Northwest fears that arguments for merger hurt small carriers.

Colonial Airlines officials led the attack against the proposed PCA-Northwest merger at recently-concluded Civil Aeronautics Board hearings with assertions that PCA has agreed to pay an excessive price for NEA's certificate and a fact statement that NEA faces no problems which can not be surmounted by its own independent efforts.

Following PCA President C. E. Bell's March 15 testimony in support of the merger (AVIATION WEEK, May 6), Edward S. Bailey, Colonial vice-president, and Alexander C. Dick, Colonial attorney, attacked that March fact made a year ago for his shareholders when he asserted to a quasi-trial exchange of shares with Northwest. They pointed out that while the market value of Northwest's shares was said to be PCA's, the book value of NEA stock on November 28, 1945, was only about 24 percent of the book value of PCA stock on the same date.

PCA Defends Plan—R. G. Lockhart, PCA vice-president and treasurer, contended, however, that the same fact price, which represented the value placed upon a property by stockholders, was a fair basis for exchange of equities. He said that in addition to the book worth of Northwest, PCA would receive NEA's "latent" value and the untapped potential of its assets.

Bailey asserted that the proposed merger would not benefit the public as any substantial loss, but, on the other hand, would result in a waste of resources. Colonial and other carriers (Continued) officials and 21 of the 31 cities now served by PCA already have one-carrier connections with Northwest. He asserted that only two comparatively small points now served by PCA have a shorter mileage distance to Boston over PCA-NEA routes than over the routes of other airlines.

See NEA as Upgrade—According to a statement by Paul F. Collins, Northwest president, that NEA was in a "precrisis" position and destined to become increasingly dependent on government subsidies "unless steps are taken to reverse the trend of events." Bailey said NEA's traffic and revenue have



NETHERLANDS SERVICE PRELUDE

A Netherlands Government Airlines DC-4 is shown loading at La Guardia Airport recently for a non-scheduled flight to Amsterdam. The plane carried 1,089 lbs. of cargo and several passengers. NGA will start regular service May 21 between New York and Amsterdam via Gander, with 11 DC-4's.

shown steady improvement since opening of Boston-New York service a year ago.

National Airlines' treasurer, J. C. Bryson, expressed the belief that arguments on behalf of the merger were weak. CAB's task is to make certain. He and the Board must be satisfied to grant new routes to regional airlines in the future if it appeared they could not or would not maintain their independence.

Honolulu Anxious For CAB Decision

Routing will assure pending need for more service to mainland, PAA says are now on policy.

HONOLULU (Special)—Despite Pan American Airways' daily Connection service from Hawaii to the mainland, increasing numbers of passengers, desiring that type of travel are being compelled to book passage under an arbitrary priority system which they find displeasing. The result is that CAB's decision on the Hawaiian route—now known to the mainland is being awaited with the utmost interest. Regardless of whom it favors, indications are that Hawaii will soon benefit from increased schedules and reduced airline fares.

United Air Lines has promised that, if certificated, it will transport within 40 days a daily flight from San Francisco and another from Los Angeles to Honolulu, with fares of \$125. The American's present fare is \$185.

FAL, TWA Prepare—United al-

ready has opened an office here, with H. Bryan Bennett as district traffic and sales manager. It is engaged primarily in booking mainland-bound passengers to fly United after reaching the West Coast, but a much larger office is being planned in event of a CAB decision favorable to United.

TWA also has a representative here selling TWA bedbugs to passengers flying to the States.

Meanwhile, the Board of Directors of the Honolulu Chamber of Commerce was expected to approve May 9 a resolution by its aviation committee favoring a route from Hawaii to the Pacific Northwest. PAA and Northwest Airways have applied for CAB certification to establish air service to Honolulu from Seattle, Tacoma and Portland.

CAB Says Trinidad Crash Due to Pilot Misjudgment

The crash of a Pan American Airways Martin M-130 flying back while making a night landing at Port of Spain, Trinidad, B.W.I., on Jan. 8, 1946, probably was caused by the pilot's misjudgment of his proximity to the water, according to a CAB accident report.

The plane, with the first officer at the controls, hit the water at more than normal landing speed and as a nose-down attitude when the pilot failed to correct his approach error. Inadequate supervision of the landing by the plane captain was also an important factor in the accident, which was fatal to 23 persons.

Constructive Regulation

THE CIVIL AERONAUTICS BOARD's new safety regulations for non-scheduled air carriers are generally adequate, realistic, and intelligently prepared. They are a vast improvement over the first draft. They should result in leaving few capable operators out of business. By prohibiting non-scheduled passenger and cargo companies as air carriers and placing them under government jurisdiction, this new industry requires adequate and responsible segments of our national air transportation system.

One disquieting note is seen in paragraph 42.16, however, which grants wide, unfettered powers to the Civil Aeronautics Administration. This will provide adequate opportunity to any petty and malintentioned CAA executive to harass the aviation, transportation or other set of freedom paper work for this dynamic industry, and stall its further beneficial development.

CAA should be given adequate and firm warning that if its cumbersome system begins to bog down operations of the ex-GIs in its handling for firms even more loadable than those it has known. These emergency operators have built an entire industry in less than a year. They will have no patience with stalling inefficiency and red tape. They will not tolerate from CAA the sort of treatment meted out to so many high-flying owners. These men cannot be pushed around.

Lesson in Common Sense

CONGRESSIONAL MEMBERS of the Randolph amendment to keep the CAA out of the repair base business, and a Washington decision by the House to restore funds for control tower operations, point a lesson for both government and industry, in the opinion of the Aeronautical Training Society and its secretary-treasurer, Wayne Winkler.

The lesson is that if CAA, or any other government agency, has any major changes to propose, it is only sound public relations and common sense to discuss the proposal honestly, in advance, with the public and all interested elements of the industry. If the project is sound, it will stand the full light of examination. Doubtless between reasonable men always work toward elimination of misunderstandings and errors in fact and judgment.

It is significant that the 16 national organizations which opposed CAA's proposal to operate repair bases were also the strongest groups which supported CAA's control tower appropriations. When a government agency finds itself in such a situation, it is time for it to consider itself with those it was moved to foster.

A policy of open discussion, similar to that which

has been followed frequently between the CAA and the Aircraft Industries Association will serve the many good men in government whose honest aim is to serve the public, rather than to deny to departmental agency leaders and ill-considered projects.

Major misunderstandings and disagreements between industry and any government agency charged with fostering and advancing that industry are unfortunate and are usually unnecessary.

On Beautiful Mail Boxes

THE STEADY LACK of imagination and enterprise apparent in some business leaders at a continuing series of week-ends. The National Council on Business Mail is a powerful organization of the nation's largest industrial users of the Postal Service. It has every right to enjoy and demand the finest facilities this nation has the power to offer. The chairman of the board of this group devoted 10 pages the other day to a discussion of "improving the mail."

Speaking at a national conference of the Railway Mail Service at Chicago, he sounded the alarm call that the Postal Service must meet the challenge of growth and change. "Every institution must grow and change in order to live," The Postal Service, which is so much a part of our national economy in our lettered, department stores, mail order houses, transportation companies, banks, insurance companies, etc., can be no exception to this challenge. It must be met. The Post Office, he has always had the capacity for success in step with the growth and the changes which have taken place in American industry."

In 10 pages of this challenging letter, the chairman tells how he would improve the Postal Service. We read about railroad tracks and very recent streamlined equipment. We read that if a railroad shortens its schedule sufficiently to deliver New York freight in Chicago on the second or third day, instead of the fourth, that is truly "streamlining" service.

In "searching for new ideas," new methods and new ways of serving the public service, the speaker suggested "rendering more and more service at lower and lower costs." But here is how passenger train schedules would always be maintained to serve the Postal Service. More highway post offices would be installed to make up for "discontinued trains." A better period paper is proposed. Postage stamps would be redesigned to stimulate sale of stamps to collectors and "to the public at large who appreciates well designed and beautiful stamps," and "I would like to see what could be done to create a more beautiful, streamlined mail box in a modern design." Let's get down to fundamentals for a moment, Mr. Chairman. How about more, better and cheaper air mail?

ROBERT H. WOOD

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The best absorbing elements called rotors turn with the wheel by means of keys fastened to the wheel itself. Because these rotors are made in sections rather than a continuous ring, for greater heat dissipation is attained and fading or warping of either rotating or fixed members is eliminated.

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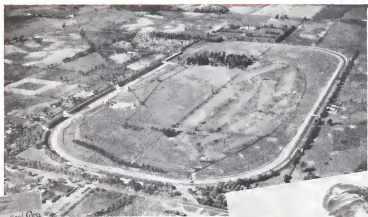
Design Features

Fixed discs are fixed with brake lining being in segment in such a way as to encourage lining shoe and provide no develop. Rimless design and gives greater braking force with less contact pressure.

Rotating members, keyed to the wheels, provide large heat-absorbing capacity. Rotors are made in segments instead of a continuous ring. This allows for heat expansion without warping or cracking.

Fly to the Races

Indianapolis 500-Mile Speedway where America's great speed classic will be resumed May 28-31, after a four-year lapse. Flying enthusiasts all over the country are being urged to "Fly to the Races!"



Roscoe Turner (right) with Wilbur Shaw, president of the Speedway Corporation and former racing champion. Turner, president of N. A. T. A. and head of the Roscoe Turner Aeronautical Corp., says: "Pilots flying to the races will get real service for their planes plus a good time they won't soon forget!"



"You'll be Welcome!" at Weir-Cook Airport

FLY to Indianapolis for this year's Speedway race, or come any time—you'll get a hearty "Hoosier welcome" at Weir-Cook Airport. You'll find the Roscoe Turner Aeronautical Corp., under the personal direction of the famous speed flyer himself, ready to care for you with a service set-up second to none.

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